Frisson and Film: An Analysis of the Sublime in Movie Music

by

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A thesis accepted and approved in partial fulfillment of the

requirements for the degree of

Master of Arts

in Music Theory

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University of Oregon

Spring 2025

THESIS ABSTRACT

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When engaging with beautiful art, many experience a pleasurable physiological response known as frisson. Frisson can manifest physically as raised hair on the arms or back of the neck, or perhaps as a tingle up and down the spine. Any artform can engage frisson in the human body, whether it be visual art, the spoken word, music, or dance. Within the scope of this thesis, I analyze scores for several films to see how composers attempt to instigate frisson. By employing various music theory perspectives, I engage with each score on its own merits, rather than forcing all scores into a single system of musical metrics. By examining this collection of film scores, I seek to find unifying characteristics within film music that inspire a sense of wonder and awe in humanity at large. Likewise, by discovering what personally inspires frisson, we learn to better understand ourselves.

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INTRODUCTION

Imagine yourself in a darkened theater. Mid-way through the movie, you have become completely engrossed with the characters and plot. You have reveled in the moments of dry comedy and have felt the investigative thrill as the mysterious story rapidly unfolds. You almost feel like a part of the drama unfolding before you on the screen. Suddenly, a moment of heavy tension occurs: the main character learns that they must sacrifice all that they hold dear to resolve the conflict in front of them. All at once, you feel shivers run up and down your spine; the hair on your arms and the back of your neck stand on edge; although it's not cold, you shiver. Surprisingly, these reactions carry a sense of satisfaction, unlike when you're actually cold. What caused this sudden outburst in your body?

Certainly, you reason, it couldn't have been caused by the action on the screen. There was no dialogue; the visuals only showed a close-up of the main character's face, which hardly moved. And yet, your phantom reaction certainly stemmed from the movie. Something else, then. Perhaps it came from the sound effects. Thinking back to the moment, there were none. In fact, all noise besides the score had been muted. But, ah, the score! You now realize that a strange chord had sounded at the exact moment your bodily experiences occurred. How did the music do that?

This experience of goosebumps, shivers, and overall stimulation, labeled by music theorist David Huron as 'frisson', happens for many while watching

movies.[1] Frisson, Huron claims, is a triggering of the fight response within a safe environment (such as in the cinema) and can be thoroughly enjoyable. Sometimes frisson mingles with other heavy, poignant emotions. Within the scope of this thesis, I will assume a Kantian perspective while analyzing sublime moments. In his Third Critique, Kant divides the sublime into two distinct modes: dynamic and mathematical.[2] What he labels as 'dynamic' is what I and Huron have just described as 'frisson;' a rapid physiological response triggering the fight reflex. What Kant labels as 'mathematical' is what we would call 'awe.' Huron relabels the mathematical mode as an appraisal response: a slow burn that takes our breath away or a triggering of the hide reflex.[3] I personally find frisson and awe to be two sides of the same metaphorical aesthetic coin. In any case, most of my research revolves around moments that trigger frisson as opposed to awe (which is not all that unusual, since Huron asserts that frisson occurs far more regularly than awe).[4] I will clarify throughout my document when I find that awe is triggered more directly than frisson.

When frisson occurs because of music, either within or without the movie theater, theorist Frank Lehman claims that it comes from either "the violation of a local harmonic expectancy [or] the build-up and discharge of

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[1] David Huron, *Sweet Anticipation: Music and the Psychology of Expectation* (Cambridge MA: MIT Press, 2006). It is of paramount importance to realize that frisson and awe are situational; what can consistently induce the shivers in one listener may prove inconsequential for another. Myriad aspects of culture and personal experience serve to eliminate any consistency in this physiological matter.
[2] Immanuel Kant, *Critique of the Power of Judgement* (Prussia: 1790), 24.
[3] Huron, 13-18; 31-35.
[4] Huron, 38.

tonal tension."[5] Returning to our hypothetical film cue that gave us the shivers, you realize that's exactly what happened: the entire scene had been cycling through an intense four-chord ostinato pattern, which ground to an abrupt halt as the ostinato gave way to a shimmering triad only distantly related to the assumed tonal center. The music caught you off-guard just like the dilemma affecting the main character. Frisson abounds.

In my thesis, I intend to analyze moments of frisson from four Hollywood film scores, covering various times, perspectives, and locations: Miklós Rósza's 1959 score for *Ben Hur*, John Williams' 1982 score for *E.T. the Extra-Terrestrial,* James Horner's 1995 score for *Jumanji*, and Thomas Newman's 2008 score for *Wall-E*. These four works, besides spanning over fifty years of Hollywood film music, cover vastly different compositional styles for equally contrasting film genres. The only unifying factor of my Hollywood film selection is that each of these films' scores have given me frisson. By analyzing Rósza to Newman, I intend to cast a light on Hollywood film score frisson at large. I hypothesize that, though each composer's harmonic style may be quite different, there will be unifying, traceable factors of surprise in each that account for moments of frisson. In addition to the four afore-mentioned film scores, I will also briefly analyze a selection of film music from outside of the Hollywood stream by examining Joe Hisaishi's 2001 score for *Spirited Away*, as well as scores from

[5] Frank Lehman, *Hollywood Harmony: Musical Wonder and the Sound of Cinema* (New York City: Oxford University Press, 2018), 172. Here it is important to note that frisson can potentially be engaged by other means. For example, Huron argues that musical passages at high volume can also lead to frisson. Jaak Panksepp (1995) finds that feelings of love and acceptance can also correlate with frisson.

cinema in India, Nigeria, and Spain. I hope to find commonalities between these varied perspectives of film music. I also intend to tease out sociological and psychological take-aways to serve not only scholars within musicology and music theory, but within the broader scope of the humanities.

With such a variety of repertoire to analyze, I believe each score will likely require its own unique analytical approach. For this reason, I will not shoehorn all scores into one particular analytical model. Rather, I will let each score stand on its own merits. That being said, I am prepared to use roman numeral, prolongational, neo-Riemannian, post-tonal, or cognitive analysis to better understand each score in its own way.

Current Research

The analysis of film music is a relatively recent sub-field of focus within the larger umbrella of music theory. One of the earliest cases of scholarly focus on the film score is Claudia Gorbman's 1987 book, *Unheard Melodies: Narrative Film Music.*[6] In it, Gorbman seeks to understand exactly what music is doing in the movies, and how it does so. Her book is decidedly not a history of film music (which had already been done to varying degrees by the 1980's), nor is it a glimpse into the method of the film-score composer. Gorbman claims that film music, like a hypnotist, lulls the audience into a state of connectivity with the film. Effective film music, she argues, doesn't draw attention to itself, but enters under the radar of the conscious listener.

[6] Claudia Gorbman, *Unheard Melodies: Narrative Film Music* (Bloomington: Indiana University Press, 1987).

Despite Gorbman's validating analysis of film music, the music theory community at large was slow to engage with the material (a problem that was part of a larger issue of bias and classical elitism within the music theory community). It wasn't until the 1990's when film music analysis began to finally gain traction. David Neumeyer, in the seminal issue of *Music Theory Online*, analyzed Schoenberg's *Begleitungsmusik zu einer Lichtspielzene* to determine whether atonal music successfully functions within the confines of film scoring practices.[7] Through a series of commutation tests, he concluded that this atonal music indeed functions as film score; his process of setting music to film also effectively elucidates some of the difficulties that distinguish between mediocre and well-crafted film scores. His article, in coordination with Gorbman's book, served as early arguments validating film music as worthy of analysis.

Film music analysis became a well-established sub-field of music theory by around the end of the first decade of the new millennium. Neumeyer continued (and continues) to be an influential voice in the field, editing *The Oxford Handbook of Film Music Studies* in 2014. Scarecrow Press began their series of books focused on in-depth analyses of particularly influential film scores from Hollywood. Furthermore, the coordination of film music analysis with the use of Neo-Riemannian theory (which perhaps not-so-coincidentally began around the same time as film music analysis) blossomed during the early 2000's. Neumeyer devoted an entire chapter of *The Oxford Handbook of*

[7] David Neumeyer, "Schoenberg at the Movies: Dodecaphony and Film." *Music Theory Online* 0/1 (1993).

Film Music Studies to the use of neo-Riemannian theory in film music analysis. Other theorists followed suit. Of particular note would be Scott Murphy, who, as early as 2006, was considering film music from a transformational perspective. Murphy continues to be a leading voice in neo-Riemannian analysis of film music to this day.[8]

The benefits of analyzing film music from a neo-Riemannian perspective are mainly two-fold: first, many film composers, from the time of Korngold and Steiner until today, tend to compose in a pantriadic idiom. That is, they employ primarily major and minor triads, but in a chromatic way that eschews a tonal center, which is more typical within much of the Western Art Music canon. On one hand, if a sense of tonic cannot be established, the functions of chords like the dominant, sub-dominant or even the leading tone become a moot point of analysis. On the other hand, triads built upon chromatic pitches (such as the raised fourth scale degree) sometimes evade an easy or informative roman numeral identification. For these reasons, an analysis using roman numerals often (though not always) fails to fully represent the film music repertoire.

Second, neo-Riemannian analysis serves to analyze music at the micro level, focusing primarily on the transformation from one chord to the other. In a canon where musical selections can (and often do) exist in increments of seconds rather than minutes, it logically makes sense to examine such music on its own durational terms. Analytical techniques such as prolongational

[8] Scott Murphy, "The Major Tritone Progression in Recent Hollywood Science Fiction Films," *Music Theory Online* 12/1 (2006).

analysis often (though not always, as we will see in my chapter on John Williams' score for *E.T.*) fail to accurately represent the musical cue. Add to this dilemma the business side of film music, where scenes are often cut, moved, and truncated, and the impetus for micro rather than macro analyses becomes all the clearer.

In the last decade, film music analysis has blossomed to become one of the primary subfields of music theory. A leading voice in the field from this decade is Frank Lehman, who, in addition to the use of neo-Riemannian analysis, examines cadential moments in film music to tease out psychological expectations the music creates.[9] His 2018 book, *Hollywood Harmony: Musical Wonder and the Sound of Cinema*, is a major influence on the field as a whole, and on my scholarly work particularly.

As the field of film music analysis continues to grow, another trend that is occurring is corpus studies that catalog and analyze selections from the film music repertoire. In 2016, Mark Richards analyzed the phrase structure from 482 Oscar-nominated films.[10] In so doing, he found two notable shifts in structure (one in the 1960s and another in the '90s) that allude to more general shifts in score styles that occurred during these same times: the birth of the pop score in the '60s and the rapid growth of music technology in the

[9] Frank Lehman, "Hollywood Cadences: Music and the Structure of Cinematic Expectation," *Music Theory Online* 19/4 (2013).
[10] Mark Richards, "Film Music Themes: Analysis and Corpus Study," *Music Theory Online* 22/1 (2016).

'90s. Richards' analysis of phrase structure effectively uses the analytical tools put in place by Bill Caplin.

Another fascinating corpus study is found in the combined efforts of Brent Yorgason and Jeff Lyon, who, after compiling a corpus of Max Steiner's film scores, analyzed the music coordinated with the display of the Warner Brothers shield at the beginning of several of his films.[11] By varying the harmonic resolution of the fanfare, they argue that Steiner used it as an opportunity for preemptive emotional effect.

I believe that by analyzing moments of frisson and awe, we can better understand how a variety of composers attempt to convey the sublime. Whether or not you or I personally experience frisson in these moments is nearly beside the point of my thesis. I find it more important to understand that at a critical point in the story, the composer chose to write music in a specific manner. By analyzing these occurrences, we will not only learn about the human experiences of the composers, but we will also learn about society at large. Each of the composers I have selected are commercially successful creators of film music. To be successful, it is imperative that they have a finger on the pulse of their audience; if they fail to deliver a convincing score, the film (as well as the millions of dollars poured into it) has a good chance of failing. If they succeed, these composers can elevate, stimulate, and inspire much of the

[11] Jeff Lyon and Brent Yorgason, "Fanfare as Fulcrum: A Pivotal Event in Max Steiner's Theme for Warner Brothers," *Music Theory Online* 26/2 (2020).

world. Indeed, as a composer myself, I have been inspired by the music from each of these composers' works. Perhaps in the following analyses, you will also learn a little about me. I find that musical analysis, far from being some inhuman computation game, is a chance to understand how and why humans behave the way that they do.

I foresee that the analysis of film music will continue to grow as a focus within music theory, especially as more 21st Century Western art music is analyzed. Many of my composer peers are influenced by the very film scores I will be analyzing. I believe that an analysis of film music directly benefits the musical field at large and extends well beyond the boundaries of music theory to the rest of the humanities.

CHAPTER II

BEN-HUR: A TALE OF THE CHRIST

Consider the content of Figure 2.1. What you see is the full theme and accompanying countermotive Miklós Rósza composed to aurally signify the Christ in the 1959 film *Ben-Hur*.[12] Due to the actor portraying Jesus having no lines of dialogue (indeed, one never even sees the actor's face; a conscious decision made by the director, William Wyler, and originating with the original author, Lew Wallace), Rósza's cues for Christ become His sole aural representation. The weighty impetus of this compositional task was surely felt by Rósza: his alone was the duty to compose the sonification fitting of God made flesh.

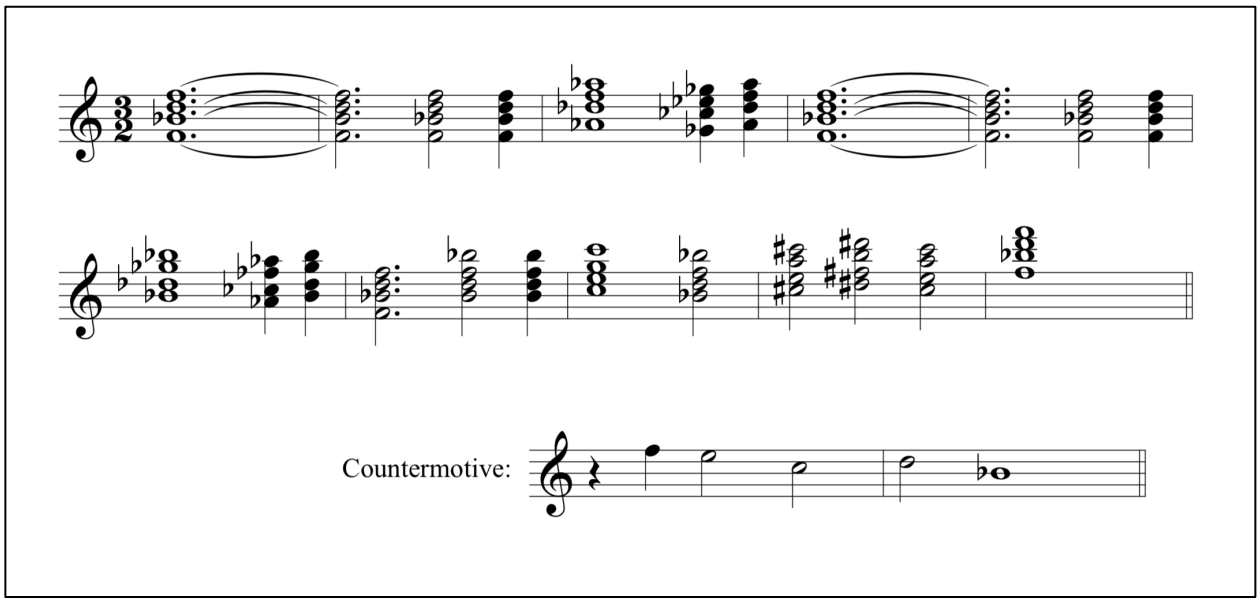

Fig. 2.1 – "Christ" Motive and Countermotive

[12] This is not the first adaption of Lew Wallace's novel for film; Fred Niblo directed the silent film adaption of *Ben Hur* in 1925. The score from the 1931 rerelease by William Axt and David Mendoza bears striking similarities to Rósza's score in many regards.

Harmonically, the "Christ" motive employs only major triads, which plane about in several directions, as evidenced in Figure 2.2.[13] There is plenty of lateral motion along the LR cycles occurring here, with a recurring RLRL/LRLR motion in the first, second, and third phrases and indicated by brackets and arched arrows in the figure. While the LRLR transformation (or, to put it another way, parallel movement of a major triad upward by a whole-step) is not unheard of in Western tonality, the RLRL transformation (or parallel movement of a major triad down a whole-step) is akin to a retrogression. It would seem a somewhat unusual choice for Rósza (who had been classically trained in composition) to employ such a harmonic transformation *unless* he was seeking to create some semblance of the sublime. While we can find several examples of impressionistic composers even before Rósza's time employing retrogression in their compositions (such as in Debussy's *Pavane pour une infante défunte*) it does not change the fact that by deliberately moving in retrogression (not just once, but several times), Rósza pushes against the tonic expectations just enough to raise the listener's eyebrows (as well as the hairs on their arms). By composing in such a way, Rósza confirms Lehman's assertion that thwarting harmonic expectations is indeed a compositional method used to invite frisson.[14]

[13] Typically, major triads will be upward-facing triangles within a *Tonnetz*; I chose to flip the triangles upside down in Figure 2.2 so that the neo-Riemannian analysis more closely aligns with the chords as they occur on the left of the figure.

[14] For further discussion of this topic, please refer to Chapter 1 of this thesis, or see Frank Lehman, *Hollywood Harmony,* 172.

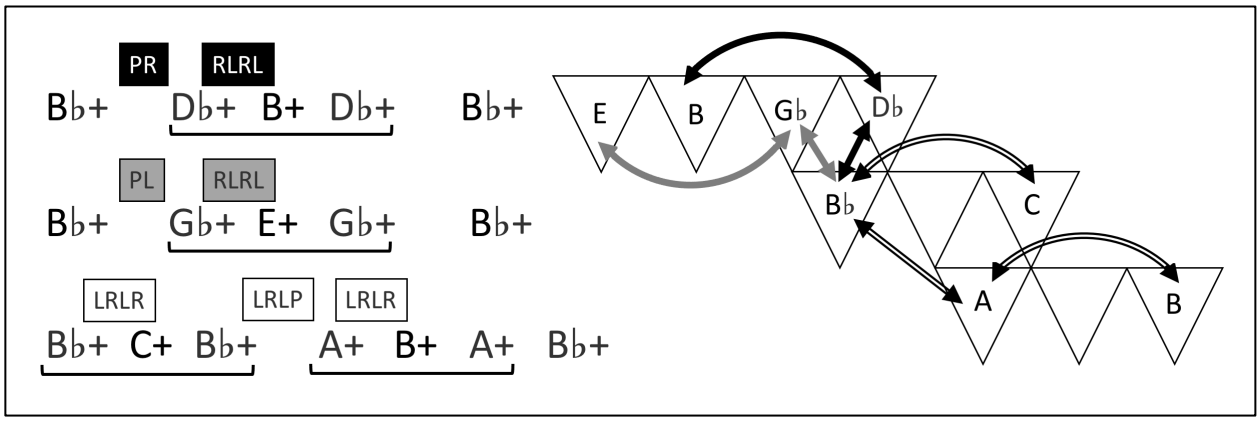

Fig. 2.2 – Neo-Riemannian Analysis of "Christ" Motive

An analysis of the contour of Rósza's "Christ" motive draws further parallels to the Redeemer: The melody, though staggered, gradually rises from a lower F to an octave above over the course of the melody's ten-measure stretch, as seen in Figure 2.3. Rósza prided himself on assimilating his native Hungarian ethnic musical style into his own, stating: "However much I may modify my style in order to write effectively for films, the music of Hungary is stamped indelibly one way or other on virtually every bar I have ever put on paper."[15] Part of his assumed nationalistic style can be seen in melodic contours which typically are contained within a range of a fifth.[16] Given his nationalistic preference, it would again seem unusual (though certainly not unheard of) for Rósza to employ such a large melodic range *unless* he had a

[15] Roger Hickman, *Miklós Rósza's Ben-Hur: A Film Score Guide* (Lanham, Maryland: Scarecrow Press, 2011), 11.
[16] Roger Hickman, 7. Zoltán Kodály and Béla Bartók, both prominent Hungarian composers and ethnomusicologists, would have likely established the basis for Rósza's nationalistic melodic preferences some years prior to his work at MGM.

specific goal in mind. The constant rising motion of the melody exposes an underlying current of hope unheard in most of *Ben-Hur*'s other cues. Furthermore, the motivic ascension could be attached directly to the character of Jesus by being interpreted as a metaphor of Christ's ascension beyond this mortal realm.

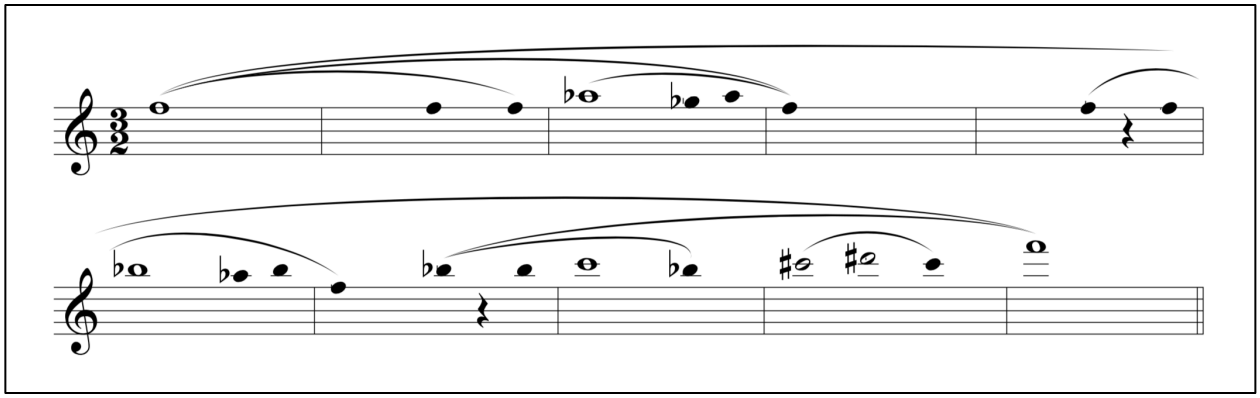

Fig. 2.3 – Reductive Analysis of "Christ" Motive

Mention should also be made about the timbral choice for Rósza's "Christ" motive, which employs in nearly every cue the wavering tremolo of a Hammond organ. This choice of instrumentation further cements the religious (albeit slightly dated) connotations of the motive.

And yet, regardless of harmonic, melodic, or timbral content, I believe that looking before and after the "Christ" motive in Rósza's score will give a more complete picture of the cause of frisson encapsulated in the score for *Ben-Hur.* Theorist Roger Hickman, in his book analyzing Rósza's composition for *Ben-Hur*, claims that the "Christ" motive is constantly interrupted by brutal

sounds of the Roman oppressors.[17] While I do not disagree with Hickman's observation, I would like to shift the analytical focus instead to the beginning of each of the cues for Christ (and, consequently, the ending of the cues immediately preceding them). By doing so, I intend to tease out further frisson-inducing elements from Rósza's score.

Some may argue that such an analysis between cues could potentially misrepresent the intentions of Rósza due to studio edits and cuts made likely without his approval or perhaps even knowledge. I whole-heartedly agree with this sentiment, as does Stephen Meyer, who has found several inconsistencies between the final film and Rósza's score for a segment of the film following the chariot race.[18] However, as my analysis focuses primarily on the effect the final film has on the viewer, it is of little consequence here whether Rósza penned these transitive moments or not. I believe that the final film stands on its own and is perceived by the public as such. Before entering into further analysis, a brief summary of the film's plot is in order.

Narrative

In this biblical epic of historical fiction, Judah Ben-Hur, prince of Jerusalem, is a contemporary of Christ during the reign of the Roman empire. Judah falls from his position of power after his childhood friend Messala turns enemy, betraying both Judah and Judah's family to get political gain. Judah is sent off to serve a life-long sentence rowing in the galley of a Roman trireme.

[17] Roger Hickman, 111.
[18] Stephen C. Meyer, "'Leitmotif': On the Application of a Word to Film Music." *Journal of Film Music* 5/1-2 (2012): 53.

His mother Miriam and sister Tirzah remain locked in the depths of the Roman dungeons back in Jerusalem.

Judah first encounters Jesus in the scorching desert as Judah is escorted by Roman guards to meet his fate in the galleys. Christ extends mercy and water to the suffering and severely dehydrated Judah. On board the trireme, Judah gains the respect of the commanding consul, Quintus Arrius. Later, as their boat is sinking after a battle with Macedonian pirates, Judah rescues Quintus, who returns the favor by saving Judah out of the galleys. Quintus ultimately adopts Judah into a new life as a Roman citizen.

Driven by revenge and sorrow, Judah is unable to stay in Rome with Quintus and returns to Jerusalem seeking out his family and Messala. After being falsely informed that his family is dead, Judah enters into a chariot race against Messala — no holds barred. After an intense race filled with chariot sabotage from Messala, Judah leaves behind the colosseum. He has won the race and witnessed the death of Messala by Messala's own nefarious devices, and yet, still Judah has not found peace. He has learned that his mother and sister are in fact still alive but have been exiled from the prison and the town as lepers. Judah becomes embittered, turning his feelings of hate and revenge toward the Roman empire.

Sometime later, Judah passes by what appears to be Jesus preaching on Mount Olivet (this is, notably, a historical inconsistency between the story of *Ben-Hur* and the timeline established in the Bible; Christ's famous Sermon on the Mount of Olives would have occurred several years prior to His crucifixion).

Instead of lingering to hear the master teacher's words, Judah continues onward to meet with Pontius Pilate, where he denounces his Roman citizenship. Judah's love interest, Esther, chooses to stay behind and listen to Christ, which later prompts her to advise Judah to take Miriam and Tirzah to be healed by Jesus. They arrive too late: Christ has already been sentenced to death and is carrying His cross through the streets of Jerusalem. Judah finally recognizes Jesus as that kind stranger who saved him from the oppressive heat of the desert all those years ago and follows Christ to Golgatha, where Jesus is crucified. In a final set of miracles brought on by Christ's death, Judah is able to finally forgive and be at peace while Miriam and Tirzah are simultaneously cleansed from their leprosy.

Analysis

In all, there are eighteen cues which employ the "Christ" motive throughout *Ben-Hur,* as shown in Figure 2.4. The grey cells contain material pertaining to the moments before a "Christ" motive appears in the film, while the white cells are numbered sequentially and contain the time stamp of when each "Christ" motive enters. Key centers are labeled rather than strict keys due to the use of modal frameworks. Of these eighteen entries, four "Christ" cues enter from a place of musical silence: cues one, three, ten, and fifteen. Some may think that the abrupt entry of these musical moments may on their own be enough to enthrall the viewer in a state of frisson, but each cue's previous musical silence would seem to exist primarily to serve more essential features on screen. For example, in cue one, the narrator (who is also the later

established character, Balthazar) is describing the conditions of Jerusalem during the meridian of time. Cue three also omits music prior to its entrance, instead favoring the dialogue between Jesus' father Joseph and one of his customers. In cue ten, the multitude have gathered at the mountain in hushed anticipation, waiting to hear the words of Jesus.

Cue fifteen, by far the lengthiest iteration of the "Christ" motive in the film, seems to require a breath before it begins its splendid Lydian contrapuntal journey, mirroring the torrents of Christ's blood washing over the land that occurs in tandem on the screen. Furthermore, the sounds of the storm dominate most of the sonic landscape during the moments leading up to this cue. Had Rósza scored music under the cacophonous sound-effects, it would have battled for even a slight amount of sonic attention. As it is, the storm slowly fades out as the "Christ" motive cue progressively fades in (the only time in the entire film where the "Christ" motive doesn't simply enter in full force). It is as if we are experiencing alongside Miriam, Tirzah, and Esther the gradual realization that both mother and daughter are healed.

From the remaining fourteen cues, we can see a clearer picture of how Rósza leads into his "Christ" motive, as shown in Figure 2.5. The far-left column contains the percentage of these fourteen cues which employ the approach listed in the coordinating far-right column. Some elements, such as a tendency towards upward registral movement, are likely unsurprising to the modern viewer given normative Hollywood film-scoring techniques and Western embodied experience.

TIME	#	KEY CENTER	DESCRIPTION	INSTRUMENTATION
		n/a	Narration over aerial shot of Jerusalem	
0:07:50	1	G	Joseph and Mary appear	Organ/Vibes/Str.
		B♭	first title card for *Ben-Hur*	Brass fanfare
0:11:59	2	B♭	during title card of "A Tale of the Christ"	Str./Br./Pc.
		n/a	Joseph talks with customer	
0:15:50	3	G	"About His Father's Business"	Organ/Vibes/Str.
		G	Judah is denied water	Strings/Brass
1:02:51	4	F	Christ gives him water	Organ/Vibes/Str.
		F	The Roman guard tries to stop Jesus	Strings/Brass
1:04:26	5	F	Judah is revived	Organ/Vibes/Str.
		E	"Why were you unshackled?"	Strings
1:19:04	6	A	"Once before a man helped me…"	Organ/Vibes/Str.
		B♭	Balthazar finds Judah in the desert	Strings
1:42:45	7	G	Balthazar talks of his search for Christ	Organ/Vibes/Str.
		E♭	Judah leaves the leper colony	Strings
3:07:21	8	F	Christ's mountain sermon is seen	Org./Vb./Str./Ww.
		(F)	Balthazar finds Judah	Strings/Ww.
3:08:42	9	B♭	"I should've poured it in the sand"	Organ/Vibes/Str.
		n/a	The crowd waits in silence on the mount	
3:10:03	10	E♭	Christ appears on the mountain	Strings
		D	"Tirzah is dying."	Low strings/brass
3:21:10	11	G♭	"If they would see Jesus of Nazareth…"	Strings
		D	Jesus collapses carrying the cross	Str./Br./Pc.
3:31:21	12	G	Judah tries to give water to Jesus	Organ/Vibes/Str.
		G	Judah meets Balthazar at the cross	Low strings/Ww.
3:33:12	13	A	"For this death?" "For this beginning."	Organ/Vibes/Str.
		E	"I have lived too long." - Balthazar	High Strings
3:33:56	14	A	Judah looks up at Christ and believes	Organ/Vibes/Str.
		n/a	The storm rages	
3:36:53	15	A♭	"Miriam, your hand!" Cue fades in Christ's blood spreads across the waters	Full Str./Br./Pc.
		G	Judah returns home	Full Strings
3:38:44	16	G	Esther is seen in water's reflection	Full Strings
3:39:19	17	G	Judah rests on Esther. He is at peace	Strings
3:40:37	18	A	A final view of the cross	Choir/St./Br./Pc.

Fig. 2.4 – List of Cues Containing the "Christ" Motive

%	CUES	APPROACH
57%	4, 5, 6, 8, 9, 12, 13, 17	Thinning of texture
21%	2, 14, 18	Thickening of texture
21%	7, 11, 16	Maintenance of texture
71%	4, 5, 6, 7, 8, 9, 11, 12, 13, 17	Registral shift of low to high
0%		Registral shift of high to low
29%	2, 14, 16, 18	Maintenance or equal expansion of register
79%	4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 18	Dominant timbral change
43%	4, 7, 8, 11, 13, 18	Key center shifts to distantly related key
29%	6, 9, 12, 14	Key center shifts to closely related key
29%	2, 5, 16, 17	Key center does not shift

Fig. 2.5 – Various Approaches into "Christ" Motive

In the case of upward registral movement, consider the metaphor GREATER IS HIGHER. Lawrence Zbikowski explores this conceptual metaphor at its most fundamental level: an abstract element that may be difficult to comprehend (such as greatness) is plotted within a tangible, concrete field (such as height).[19] It maps quite simply in a quantitative sense (large pile of money = great amount of potential power) but extends into the qualitative realm as well. In our Western society we have many phrases that establish our qualitative sense of height: we have high kings and lowly peasants; we look up to our role models and down on the degenerate; we can go up to heaven or down to hell. In the case of Rósza's most dominant contrasts leading up to his "Christ" motive, given our Westernized perceptions and musical correlations, it

[19] Lawrence M. Zbikowski, *Conceptualizing Music: Cognitive Structure, Theory, and Analysis* (New York: Oxford University Press, 2002), 63-66.

makes sense that a figure such as Christ would occupy a comparatively high register to reinforce His relation to heaven, God, and greatness. By employing upward registral movement leading into the "Christ" motive, Rósza effectively sets apart these moments as higher or holier than the surrounding narrative.

A substantial timbral change (as opposed to relative timbral continuity) is equally unsurprising, as a shift in the visual elements, characters, or plot of the film often necessitates a change of sonic signature to match. At its most arcane level, such sonic mimicry can risk dull pedanticism or even comedic impetus. Stemming from early cartoons in the '30s and '40s where the film's score meticulously matches on-screen actions, the term "Mickey-Mousing" best encapsulates this potential.[20] To explain another way, Shin-ichiro Iwamiya explains that we can experience perceived congruence in two aspects. "Formal Congruency" matches both auditory and visual temporal aspects.[21] To evade this risk, composers by Rósza's time were certainly aware of sonic mirroring's potential pitfall and likely sought to compose music that mimicked on-screen elements in a more subtle approach, such as a change in timbre. In Iwamiya's vein of thought, they were attempting "Semantic Congruency", or a congruence between audio and affect.

Other musical facets regarding Rósza's film-scoring approach may seem less standard in their application. For example, the overwhelming majority of

[20] James Buhler, David Neumeyer, and Robert Deemer. *Hearing the Movies: Music and Sound in Film History.* (New York: Oxford University Press, 2010), 72-74.
[21] Siu-Lan Tan and others (eds). *The Psychology of Music in Multimedia.* (New York: Oxford University Press, 2013), 141.

these cues shift from thicker to thinner texture (often coinciding with a shift from loud to soft dynamics). Perhaps a shift to gentler music making reflects a shift towards the spiritual. Perhaps the piano passages are meant to capture a sense of peace given by the Savior of the world. In any case, this dynamic trend in *Ben-Hur* runs contrary to the giant anthemic swells that may induce frisson in more modern action films and runs counter-intuitively to research by Eitan and Granot (2006), where dynamics were significantly associated with conceptual distance (termed a "cooperative interaction").[22] And yet, perhaps a "noncooperative interaction" (where congruency between film and score aren't explicitly linked) can prove fertile grounds to induce frisson.

Referring to Figure 2.5 a final time, it came somewhat as a surprise to me that the shifts in key centers leading into the "Christ" theme showed almost no preference for harmonic movement leading to the "Christ" theme. I would have guessed that shifts to distantly related keys would have dominated these cues, since the jarring shift in tonal center could be another way to induce frisson. After all, we have already seen how the theme itself contains several shifts that would suggest a distant tonal-centric relationship.

However, after further reflection, I have concluded that this equivocality can suggest two points for consideration: first, although I still believe that we can analyze films on their own merits, we must also acknowledge that films like *Ben-Hur* were pieced together by several people (many of whom likely lacked much, if any, musical training). As such, while we can still analyze the

[22] Siu-Lan Tan, 142.

film on its own merits, limitations inevitably will emerge concerning how thoroughly certain musical elements can be analyzed at larger levels. For example, when considering that film composers often are working cue by cue (and not always in the order that the film will ultimately appear), a prolongational analysis covering the entirety of a film score generally (though not always![23]) proves infertile for any amount of insightful analysis. To be fruitful, an analysis of a score at the myriad levels between a single chord and the full score will likely vary in quality depending on the level to which the composer is involved in the final say of the production.

Secondly, and returning now to a focus on *Ben-Hur,* perhaps the several distant shifts within the "Christ" motive or other external factors warranted a desire for smaller tonal center shifts (if any) leading into it. Certainly, this is the case in "Christ" cues sixteen and seventeen, which together serve as a final rallying build towards cue eighteen, which shifts up a whole-step while also introducing the choir singing a final "hallelujah" as Judah is reunited with the healed Tirzah and Miriam, and Esther. In this span of a little more than three minutes, Rósza effectively delays (or prolongs) the moment of frisson precisely by *not* shifting tonal centers.

Before closing this analysis of *Ben-Hur*, I shift my focus briefly to the motivic variation (or lack thereof) for the "Christ" theme. For most of the film, though the key center may shift, the "Christ" theme maintains consistent

[23] Notably, the film scores of Herbert Stothart use key symbolism throughout to create underlying designs. For further discussion of prolongational analysis of film scores, please see Chapter Three.

melodic and harmonic content, albeit with varying degrees of duration. In fact, barring cue two, which is encapsulated within the fanfare of the opening credits, each of the instances of the "Christ" theme leading up to the entr'acte don't even deviate in orchestration. The first instance of changing orchestration occurs a mere thirty-five minutes from the end (cue eight), when we witness the crowd gathered at the mountain to hear Jesus. Even here, the harmonic and melodic material maintains its original stature. I don't find it coincidental that this shift occurs at a point in the story where Jesus has officially begun his ministry. From this point forward, we will see variations in six more cues.

Cue ten contains the first instance of melodic deviation, as shown in Figure 2.6. The reason behind the melodic deviation is clear to see, as Rósza has penned lyrics (taken from the Beatitudes) to accompany them.[24] The final cue for the film omits any choral setting, instead opting for a string ensemble. As to why Rósza made this orchestration change, I am thus far unable to find. But the original rhythms and pitches remain, regardless.

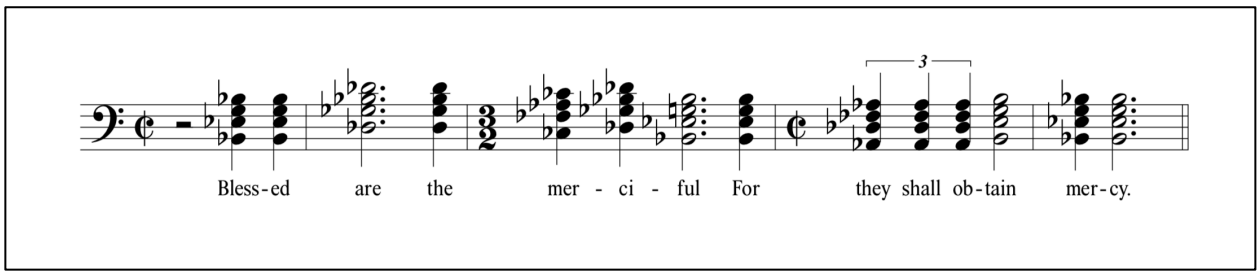

Fig. 2.6 – Excerpt From Cue Ten of Rósza's "Christ" Motive

[24] Roger Hickman, 133.

Cue eleven shows another orchestration change, replacing the standard tremolo organ, vibraphone, and strings for only string orchestra. This cue coincides with Esther trying to convince Judah to take his sick mother and sister to Jesus to be healed. The following three cues (12, 13, and 14) return once more to the original orchestration as the focus returns to Judah and his conversion process at Calvary.

Cue twelve takes the "Christ" motive and countermotive, developing both in full orchestration heartily over nearly two minutes of uninterrupted musical bliss. This coincides with the healing of Miriam and Tirzah and the dispersing of Christ's blood across the waters (visually, but also symbolically). Cues sixteen through eighteen also present the "Christ" motive in rich orchestration and with several alterations in harmonic content.

Ultimately, Rósza used motivic transformation in a way that left us wanting more. By constantly returning to the same harmonic, motivic, and timbral settings for the majority of the film, the tension is built in such a way that when these alterations in the "Christ" motive finally appear at the end of the film, an overwhelming satisfaction shoots through the body, creating the perfect atmosphere for frisson.

CHAPTER III

E.T.

"Cut!"

With beads of sweat dripping down his face, the conductor lowers his baton. Yet another failed attempt at synching his music to the film means even more time in the studio with nearly one hundred musicians. Each extra minute cuts deeper and deeper into the film's budget for the music. The scene to be scored is a long one: over ten minutes of non-stop, action-packed film. One small mistake in timing will ruin the entire take. The director of the film takes the composer aside. "I'll pull the film off the screen. Conduct the music as you feel it should be played, and I'll conform the film to fit the music."

Such was the highly unorthodox interaction in 1981 between director Steven Spielberg and composer John Williams for the finale of the film, *E.T. the Extra-Terrestrial.*[25] Speaking of the experience, Williams commented, "I think, a part of the reason the end of the film has such an operatic sense of completion (a real emotional satisfaction, as well as satisfaction from what we see) may be partly the result of this wedding of the musical accents with Steven's film editing."[26]

Whatever the cause for the satisfying ending may have been, *E.T.* proved to hold a widespread appeal, as evidenced by its sales. The film maintained the position of the highest-grossing film of all time for over a decade.[27]

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[25] John Williams, "A Conversation with John Williams," *Bonus Materials. E.T. the Extra-Terrestrial,* Universal, 2002.
[26] John Williams, "A Conversation."
[27] *Guinness World Records.* Vol. 60, 2014, 160-161.

Regarding film score analysis, rarely does the music theorist get the opportunity to analyze a score in large scale. If such a project is undertaken, the task frequently proves futile. A bevy of cuts to the film often break up the film composer's original artistic intents. Many times a scene with music may be bookended by scenes without any music at all. These edits will generally render analytical attempts of the overarching score as vain endeavors, since we fail to perceive the composer's original intents on a macro scale while watching the film. David Neumeyer explains the struggle for prolongational analysis in film scores another way:

> "Since music is rarely ever continuous in a sound film (what *is* continuous is the soundtrack), the concept of a teleological tonal plan must always be negotiated with a film's temporality, and there is no easy formula for that. Although terms like 'wall-to-wall' have been used pejoratively to refer to some film-scoring practices of the later 1930s and 1940s, even the most heavily scored sound films typically do not cover more than 50% of the film's timeline with music. The number of cues in a typical dramatic feature film may range from ten to sixty; some may be as long as five or six minutes, but most will be two minutes or less (though frequently cues are segued to create longer sequences of music). Apart from external evidence of the usual kind (composer statements, clues in sketches), an apparent teleological tonal scheme can only be made more or less 'convincing' through accumulation and through one's reading of the narrative. Even if we can be satisfied that the obstacle of time gaps can be overcome, we must still face the perceptual problem: if there are doubts about whether listeners can actually hear or process large-scale tonal schemes in concert music, the doubts must be magnified in music for film, not only because of the time gaps but because of the listener/viewer's divided attention."[28]

[28] David Neumeyer, "Tonal Design and Narrative in Film Music: Bernard Herrmann's A Portrait of Hitch and The Trouble With Harry," *Indiana Theory Review* 19 (1998), 105.

Because of the scarcity of unaltered, substantial musical cues for film, we can recognize the nearly quarter-of-an-hour finale of *E.T.* as a rare opportunity to employ prolongational analysis in the study of a film score. By engaging with the score in such a way, I will seek to explain some of the cue's "operatic sense of completion" as well as identify moments that prove as fertile grounds for frisson. Due to Williams' use of chromaticism and extended harmonic techniques, I have chosen to adjust my analysis away from the typical Schenkerian methodology in a few ways. The most glaring difference will be found in my harmonic analysis. While I still include some Roman numeral analysis (seen in Figures 3.2 and 3.5, specifically), the primary harmonic analysis will occur within my staves, where I analyze using lead-sheet notation to more accurately reflect William's jazz-informed harmonic language. I have kept my lead-sheet notation between the treble and bass clefs (as opposed to its typical place above the staff) in an effort to keep my primary lines and theme identifications from becoming overly cluttered.

Narrative

E.T. taps into the personal experience of director, Steven Spielberg, who, as a child, dealt with the divorce of his parents by creating an imaginary friend. The narrative for *E.T.* was a joint effort between Spielberg and writer Melissa Matheson. What starts as a foreboding sci-fi film evolves into a story of love, friendship and acceptance.

The film opens in the hilled woods of Southern California. An unknown race of alien figures slinks quietly through the foliage in the night. As they

inspect the earth's plant-life, a fleet of American government officials interrupt their horticultural exploits. The extraterrestrials make a mad dash back to their spaceship, narrowly evading the humans as they take off for outer space. In the flurry of activity, one of their own is left behind. The stranded creature finds harbor in the backyard shed of Elliott Taylor.

After an initial fearful encounter with the alien, Elliott lures the Martian into his house with American chocolate. Coincidentally (thanks to some shameless product placement), sales for Reese's Pieces boomed after the film hit theaters.[29] The following day, Elliott stays home from school and an unlikely friendship between the alien (who Elliott dubs "E.T.") and the boy starts to blossom. Their relationship extends beyond mere friendship to become a quasi-symbiotic relationship, where the two share not only experiences, but thoughts and feelings.

Eventually, Elliott's siblings (the teenaged Michael and the kindergartener, Gertie) discover E.T., and the trio attempt to keep the alien out of sight from their mother. As the story progresses, the children learn that E.T. comes from outer space. Using makeshift building materials from around the Taylor's home, E.T. constructs a communication device to reach out to his alien kin. Under the guise of Halloween costumes, the children take E.T. out of their suburban neighborhood and back to the forest so he can use the device. Elliott stays out with E.T. in the woods all night.

[29] David van Biema, "Life is Sweet for Jack Dowd as Spielberg's Hit Film has *E.T.* Lovers Picking Up the (Reeses's) Pieces," *People* 18:4, Time Inc. (1982).

In the morning, the sick and exhausted Elliott awakes alone and makes his way back home. Michael goes out to find E.T., who (like Elliott) is also sick, weak, and pale. Fearing that things have gotten too serious, the children decide to show E.T. to their mother, just as the government officials invade their house. As a swarm of U.S. officers and doctors run tests on E.T., the symbiotic relationship between the alien and Elliott is severed; E.T. is pronounced dead as Elliott rapidly regains full health.

In a miraculous series of events (perhaps spurred by the power of love), E.T. somehow regains consciousness. Elliott, along with his siblings and some friends, make a last-ditch effort to smuggle E.T. out of the government's hands and back to the woods. The authorities chase close behind as the children ride on bicycles. As it seems that all hope is lost, E.T. levitates all the children out of harm's way and away to the woods. Finally reaching the clearing from the beginning of the film, the motley crew discover that E.T.'s communication device has worked; before them looms a giant spaceship waiting to take E.T. home. Amidst tearful farewells, E.T. and Elliott part ways. The spaceship takes for the skies as a rainbow appears across the screen.

Analysis

The final cue for the film begins as the screen cuts to the children hurriedly pedaling their bicycles with E.T. in tow at 1:39:54.[30] The churning of

[30] There is music leading up to my beginning marker, which could be argued to be a preliminary part of the musical cue. Other analyses of this cue, such as Emilio Audissino (2021) or David McCaulley (2024), sometimes include this portion of music. I have chosen to begin my analysis at 1:39:54 because I feel that this preliminary music could be (and may have been) easily spliced together with some simple studio engineering.

the strings mimics the children's pedals, as well as alluding to the impending primary tone, $\hat{5}$. The primary tone is stated in full at the conclusion of the "victory" theme: a quartal melody in towering brass fanfare that resolves to the $\hat{5}$ of C major. Once the primary tone has been established, the "victory" theme repeats itself, cementing the C major tonality of the cue (albeit with Lydian inflections and modal borrowing, as evidenced by the A♭ major triads within the first system of Figure 3.1) and reaffirming the primary tone.

The second system of Figure 3.1 breaks rank from the harmonic expectations of C major. The E minor 9 suggests a shift in power, perhaps placing E as a new tonal center. This interpretation is further affirmed by the use of B major, F♯ major, and G♯ based triads later in the system. Dramatically, this shift of harmonic centers mirrors the confusion of power on screen. With car-driving feds trailing close behind the bicycling youth, it would seem that the children could be apprehended at any second. At a crucial moment, as the government officials block off the children's route at the bottom of a hill, the youth are miraculously able to blow past the barricade. The harmony, notably the D♭ major triad acting as a tritone substitution (which is only further reinforced by the bass moving to G), suggests that the power may be shifting back to C major.

But the shift is not to be (yet!). Instead, the third system of Figure 3.1 brings us back to the "victory" theme, but this time entirely tonally grounded in some form of E centricity. The ensuing "flying" theme, beginning within an A major soundscape, is as equally distant from C major as the previous "victory"

theme. Despite what may seem as a victory for the protagonists on screen, the power still ultimately resides with the government officials. As one of the youth suggests that they split up to deter the fuzz, the harmony swings back strongly towards C major territory at the end of the third system with chords like the modally-borrowed B♭ major or even the suspended C chord.

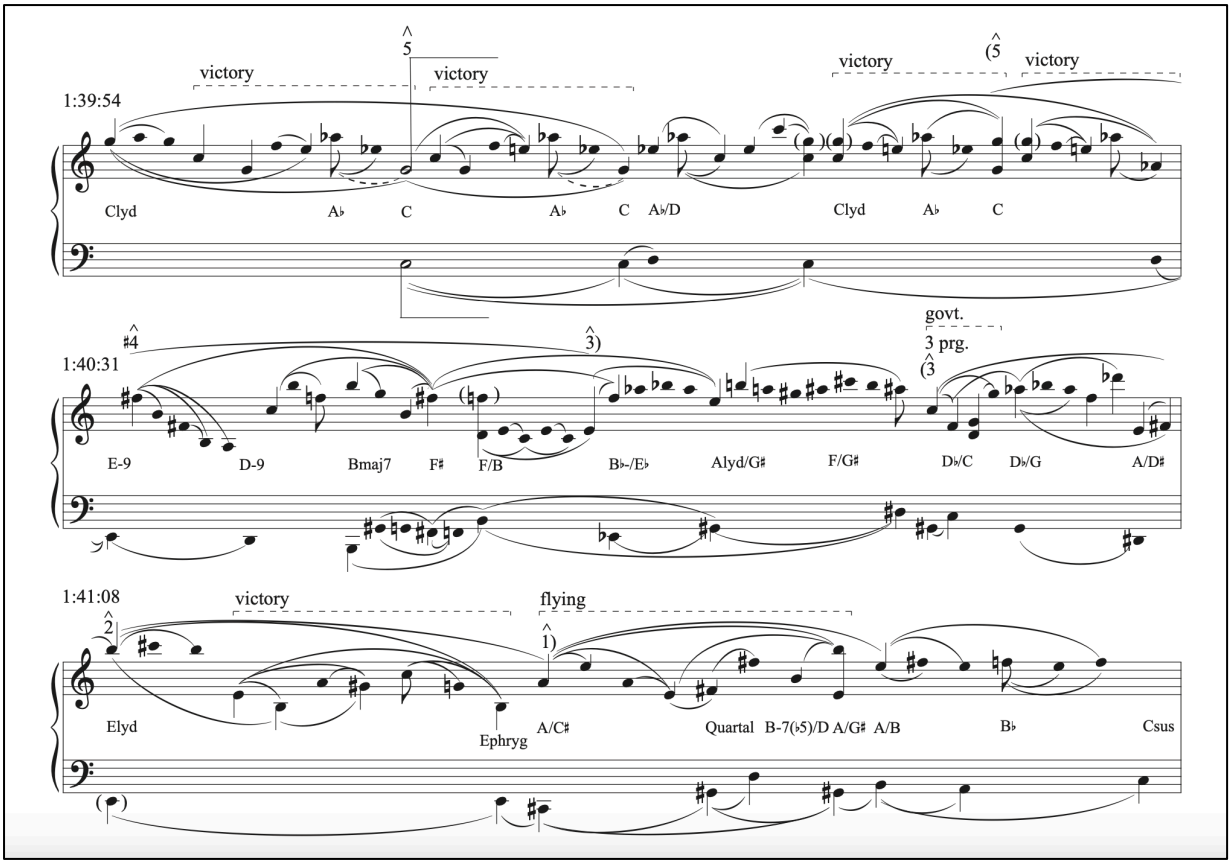

Fig. 3.1 – Reductive Analysis of 1:39:54-1:41:34

The plan to split up the gang has seemed to work. We can even see our second member of the fundamental structure (albeit with a Lydian inflection) in the first system of Figure 3.2. Things seem to be going the kids' way. And yet, the harmonic structure of the first system still suggests that power resides

squarely in the government's hands. Chords rooted on B litter the whole first system, suggesting an E-centric resolution somewhere down the line. Likewise, in the drama, we can sense that even though the children are currently in the clear, they certainly haven't lost the adults.

By the second system, the other government shoe drops. The seemingly endless bevy of agents has set up a barricade, complete with guns.[31] Throughout the "flying" theme at the beginning of the system, the harmonic vocabulary clearly leans towards an E-centric tonality. The primary line landing on the $\hat{3}$ only serves to reinforce the centrality of E. But then a shift occurs in the "government" theme: A♭ major and altered dominant chords throw out the suggested tonality. What could happen next harmonically would be anyone's guess. Given Williams' propensity toward modal borrowing, these A♭ chords could suggest a strong shift back toward C major. As we moved tonal centers from C to E earlier in the cue, we could also hypothesize that a new tonal center could be established on A♭. But here is where the unexpected occurs: rather than resolve back into C, E, or even A♭ centricities, Williams instead chooses to reinstate the "flying" theme in D major (a whole-step up from our expected tonality). The harmonic language (as well as our overlying primary line) is literally lifted up into the air, mirroring the actions of the children as E.T. levitates them out of harm's way. The "flying" theme is then played through in its entirety as the children soar across the sky.

[31] Or walkie-talkies, depending on whether you are watching the original or re-released version of the film.

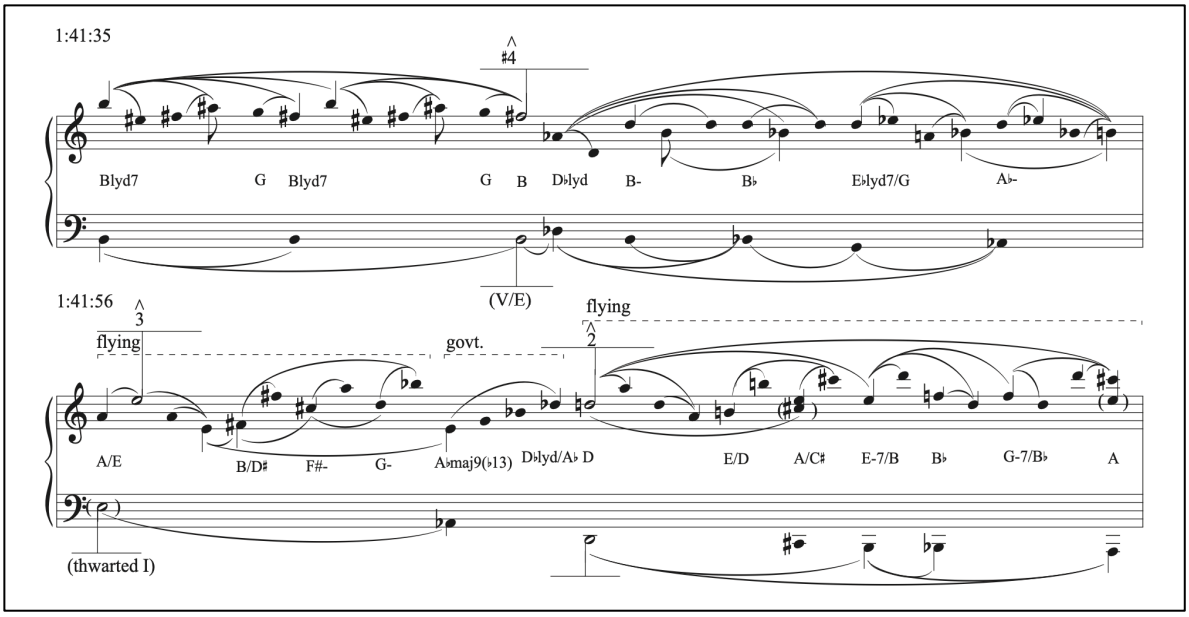

Fig. 3.2 – Reductive Analysis of 1:41:35-1:42:40

As the cue continues into Figure 3.3, the harmonic ground continues to shift, just like the protagonists watching the literal ground shift as they float along their way. A blazing sunset serves as their backdrop. The B♭-centered harmonies offer a similar kind of potential to what we heard in the "government" theme in Figure 3.2: almost anywhere could be a new tonal center. And here is where the second unexpected musical moment occurs: as the children start their descent back into the forest from the beginning of the film, the music returns to C major (the same key that began the cue)! Theoretically, this motion from B♭ major to C major could be viewed as a type of "backdoor" dominant leading to tonic.[32] The full "flying" theme is again stated, bringing closure to this section of the piece. Some not-so-subtle mickey-

[32] For further discussion on "backdoor" dominants, see: Mark Levine, *The Jazz Theory Book*, (Petaluma, California: Sher Music Company, 1995), 325-327.

mousing occurs in between the $\hat{2}$ and $\hat{1}$ in the primary line as a descending major scale mirrors the children's final descent and landing.

Dramatically, we have reached the conclusion of our heroes' journey. The children are now well out of harm's way and E.T. has returned to the forest where he will (as we will shortly see) be returned to his fellow extraterrestrials. But poetically, we crave more closure to this tale. Harmonically and melodically, the music at the end of the first system of Figure 3.3 serves as a convincing ending. But, instead of ending there, a final $\hat{5}$ line is reintroduced at the beginning of the second system.

This final $\hat{5}$ line, though containing some adventurous foreground harmonic motion, is far tamer in background movement than the previous $\hat{5}$ line. Ambiguous chordal movement (exemplified by the E Lydian harmony

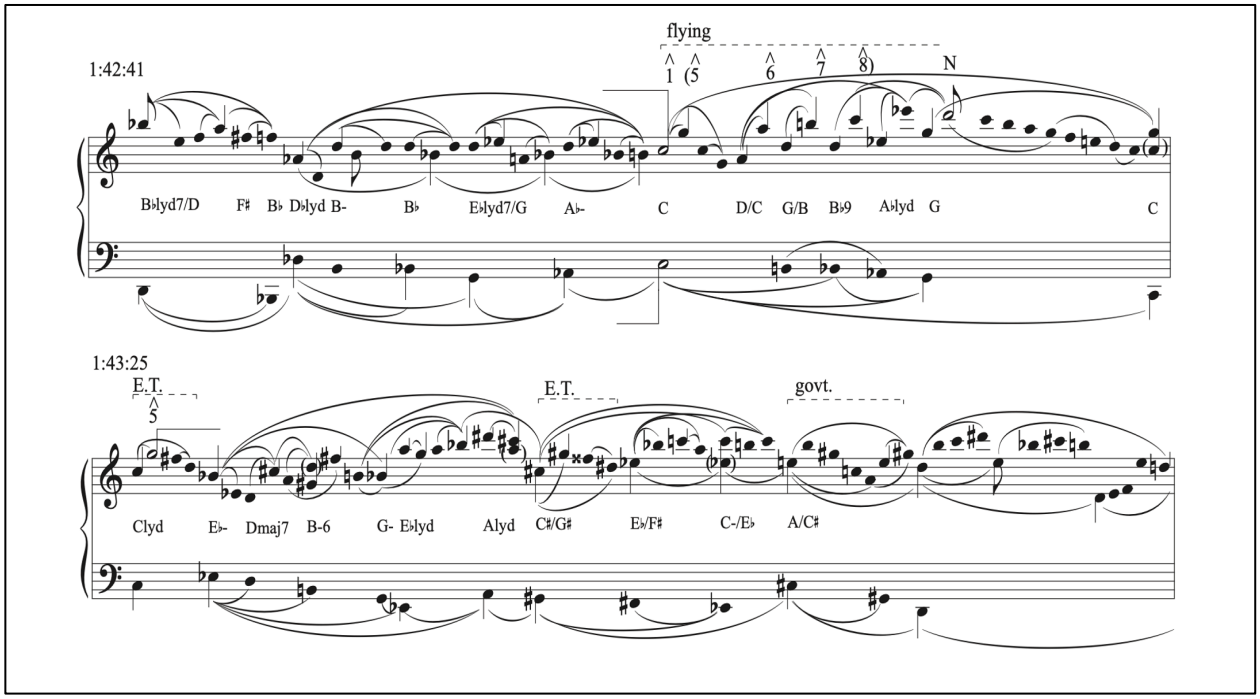

Fig. 3.3 – Reductive Analysis of 1:42:41-1:45:22

moving by tritone to an A Lydian harmony right before the “E.T.” theme) and harmonic structures (exemplified by the slash chords beginning in the “E.T.” theme) meander toward an A major harmony by the end of the second system of Figure 3.3. This A major harmony underpins the final iteration of the government theme, which is now stripped of its menace to emphasize that the protagonists have indeed won.

The A major “Government” theme quickly makes way for an extended iteration of D major harmonies, which first began at the end of Figure 3.3 and continue throughout the entirety of Figure 3.4. An upward moving D major arpeggiation reinforces this analysis at the end of the first system. Serving as a V of V, this secondary dominant accompanies the screen as E.T. bids farewell first to Gertie, then Michael, and finally Elliott.

At first blush, the B Lydian harmony which begins the second system of Figure 3.4 would seem to serve as a harmonic departure. I would argue it maintains the fundamental essence of D major, while its Lydian inflection adds coloristic elements not unlike what would be seen in an altered dominant chord within the jazz idiom (the $\hat{3}$ and raised $\hat{4}$ of B Lydian could be reinterpreted as the $\flat\hat{9}$ and $\sharp\hat{9}$ of D major).

Though Williams’ score spells the “love” theme at the end of Figure 3.4 in sharps, the enharmonic equivalent gives us the modally borrowed $\flat\hat{6}$ of C major, which we have already seen him use as both predominant and dominant figures (see the first system of Figure 3.3). In the case of this ending figure of Figure 3.4, Williams uses the G♯ chord to unexpectedly pivot back to C

major. This pivoting harmonic motion occurs as Elliott and E.T. meet in a tearful embrace, knowing that they must indeed part ways.

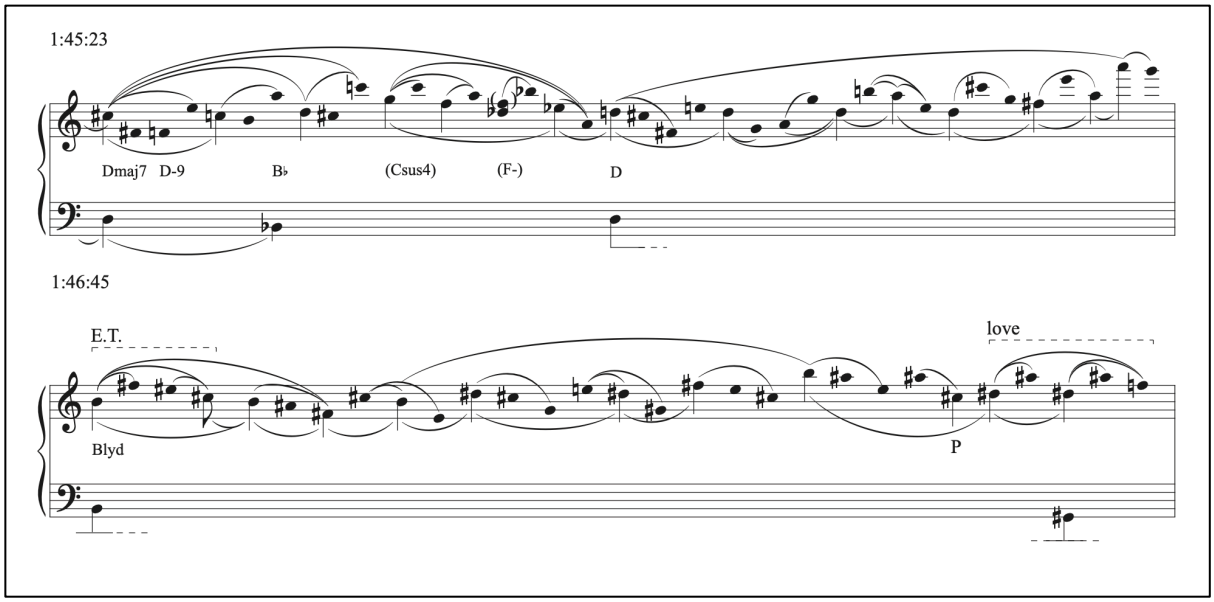

Fig. 3.4 – Reductive Analysis of 1:45:23-1:47:39

Time seems to stand still as the two unconventional friends share one last moment together. Harmonically and melodically, the music echoes this sentiment, as shown in the first system of Figure 3.5. Though the bass may arpeggiate around the roots of C major inversions, the harmony retains a firm C major harmonic pedal. An arpeggiation in the middleground structure backs up this interpretation.

Noticing that Elliott is crying, E.T. pulls back from their hug to shine his pointer finger (an allusion to earlier in the film when E.T. uses his glowing finger to miraculously heal a cut Elliott sustained) and utter the final words, "I'll be right here." This moment triggers the final cascade of the fundamental structure in the music. The $\hat{4}$, which coincides with E.T.'s finger lighting up, is

harmonically backed by F Lydian structures, which quickly make way for C major to return. As the "victory" fanfare sounds one last time, the $\hat{3}$ falls into place with C major harmonies.

Time (and harmony) moves quickly now, perhaps mirroring the feeling of bittersweet longing that the heroes feel as they part ways faster than they would like. Another briefly stated altered dominant (this time a V^7/IV) tugs at the heart strings as E.T. heads for his spaceship.

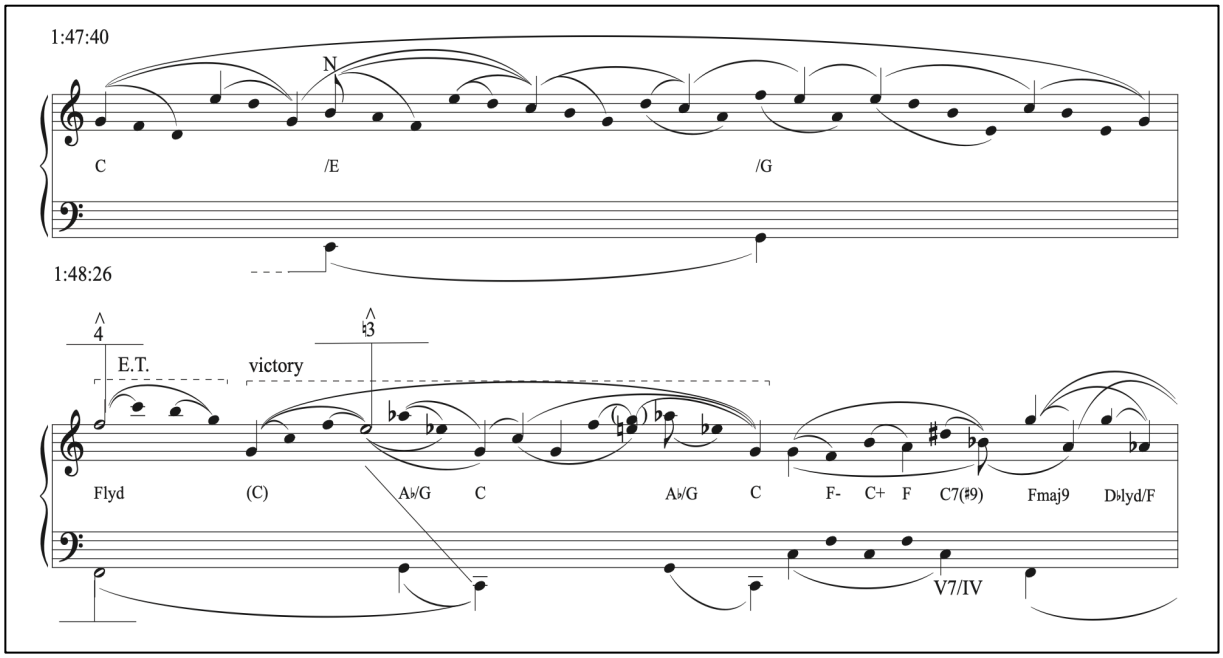

Fig. 3.5 – Reductive Analysis of 1:47:40-1:48:46

A temporally augmented segment of the "flying" theme soars over the ambiguous chordal structures within the beginnings of Figure 3.6. The fundamental $\hat{3}$ helps clarify that this swirling harmonic range is only surface level — the end is truly near.

A grand caesura over an altered D7 (complete with the lowered $\hat{3}$ of the fundamental line) makes way for a delicate piccolo solo with accompanying harp and strings to restate the "E.T." theme as the spaceship doors close. From this point, Williams pens one last swell to a glorious climax. A fragment of the flying theme is repeated while strings mimic the spaceship taking off by slowly rising over a C pedal. A brass fanfare (also grounded in C major) erupts from this growth as the spaceship creates a rainbow contrail while it breaks through the earth's atmosphere. A final statement of the "E.T." theme is heard as we witness each of the human characters looking up into space frozen in awe. The climactic sense of harmonic closure, after so many re-directed key

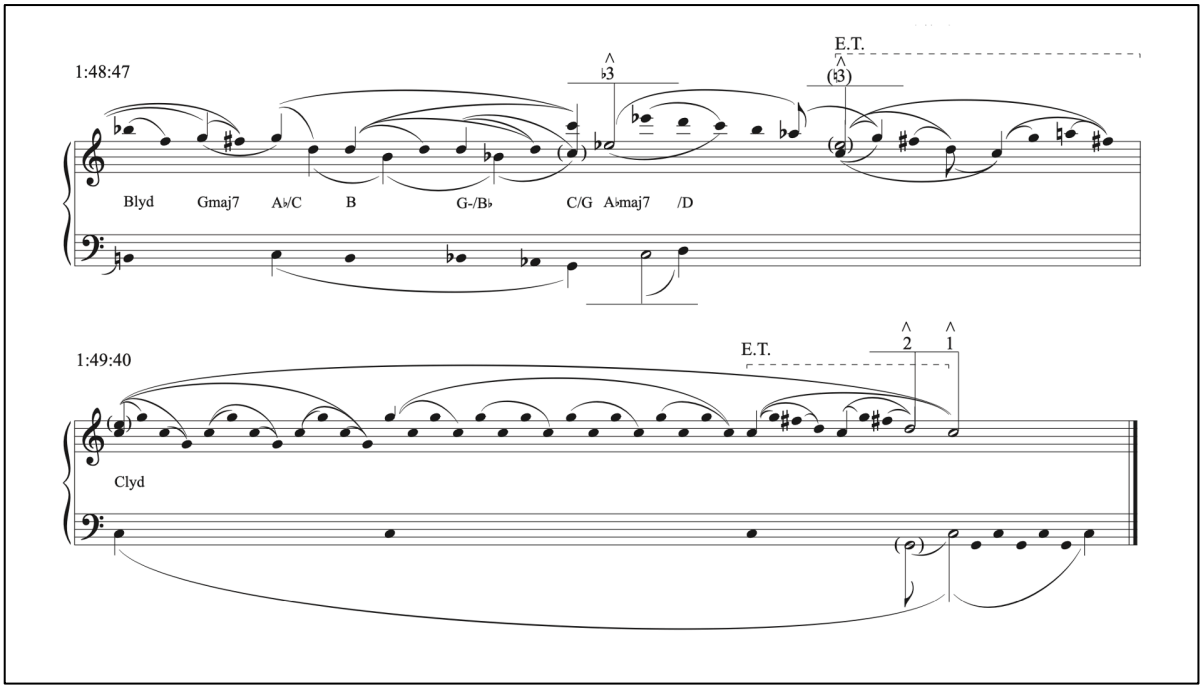

Fig. 3.6 – Reductive Analysis of 1:48:47-End

relationships, contributes to the feeling of awe and wonder. The $\hat{2}$ (with an assumed bass $\hat{5}$) and $\hat{1}$ of the fundamental structure come to a thundering close as timpani pounds out a climactic $\hat{5}$ to $\hat{1}$ bass arpeggiation.

The closing scene of *E.T.* never fails to disappoint me. It is overflowing with pathos and is arguably one of the most musically driven segments of film ever produced by Hollywood. I feel that a reductive analysis of this final cue served me in two major ways: first, it enhanced particular storytelling and emotive qualities that would have been lost on me with a more foreground analytical approach. Had I been analyzing purely from a thematic approach, I might have concluded that the children had gotten away from the government at the beginning of the second system of Figure 3.2 because of the use of the "flying" theme. I could have also concluded that the heroes were in danger at the end of Figure 3.3 when the "government" theme made its final appearance. My prolongational analysis served to inform my artistic consumption. Stemming from a tradition dating back at least as far as the early 1800's (a prime example being Schubert's *Erlkönig*), Williams has effectively paired tonal centers with dramatic circumstances.

Second, this reductive analysis aided me in analyzing methods that Williams uses to engage frisson. I came away with two main ideas: First, whether Williams was composing with fundamental structures in mind or not, he certainly composed this cue with a classically informed formal structure as a framework. From Figure 3.1 to the middle of Figure 3.3, we can see the underpinnings of rounded binary form (a C major A section that deviates to an

E-centric B section, which then returns to a C major ½ A section… by way of a false return to D major). By using such a common structure as rounded binary, Williams creates something that can be expected by the listener. By thwarting expectations (such as arriving back at thematic A material but in a different tonal center), Williams attempts to create frisson.

The second main idea is that Williams uses a harmonic palette informed by his early years as a jazz pianist to thwart classical cadential expectations.[33] By thwarting these classical expectations, Williams provides fertile ground for frisson to blossom. A prime example of this would be his use of altered dominant chordal structures as seen in several moments in my analysis. By changing many or all of the alterable upper extensions of his chords, Williams creates a sonority that is far more tense than a typical dominant seventh chord. Since Williams operates within a mainly tonal framework (albeit with several moments of fairly extreme chromaticism), these crunchy altered dominants leave the listener in a heightened state of suspense. Even by then resolving in the typical V to I fashion, the effect can be quite stimulating. Add on to that his use of unexpected resolutions (such as the "backdoor" dominant in Figure 3.3), and one can readily see grounds fertile for frisson.

In his analytical conclusion to Williams' finale for *E.T.*, Patrick Suiter summarized his thoughts on Williams' efforts: "Williams is able to […] compel us to *wonder*, to weep and to smile. […] We can learn [from this piece] so much about how to craft *emotionally resonant* and *impactful* music" (emphases

[33] Laurent Bouzereau, *Music By John Williams,* Disney+, 2024.

added).[34] In a world where aliens befriend boys and bikes soar through the skies, a suspension of belief proves fruitful for myriad paths to experience a sense of wonder.

[34] David McCaulley, "E.T. the Extra-Terrestrial: "Finale" by John Williams (Score Reduction and Analysis)" YouTube, 2024, https://www.youtube.com/watch?v=mQ8_rFKpbp8.

CHAPTER IV

JUMANJI

Consider the dilemma of the film score composer: in a short and stressful matter of hours, they are tasked with creating the score for a multi-million-dollar production. Theirs is the duty to convince the audience of the devastation of war, the excitement of flight, or the breathlessness of love. In the era of silent film (and often still today) those tasked with pairing music to film might choose to insert iconic pieces from the classical repertoire to quickly help bridge the gap of pathos and film. Selections could include Barber's *Adagio for Strings*, Wagner's overture to *Die Walküre,* or Tchaikovsky's love theme from *Romeo and Juliet*. In each of these cases, the music has been so often paired to specific cinematic depictions of emotion that they seem overdone or perhaps too on-the-nose. Often, placement of these scores can create a humorous irony, such as the placement of *Adagio for Strings* in an episode of the sitcom, *Seinfeld*.[35] Despite this risk for sonic satire, the cinematic composer must walk the tightrope in creating music that is emotionally accessible to the casual viewer while at the same time not crossing into irony or triteness.

In this paper, I intend to analyze several cues from the late film composer James Horner for the 1994 film, *Jumanji*. While Horner's work has been criticized as being clichéd,[36] it nevertheless provides a thoroughly consistent

[35] In Episode 140, titled "The Fatigues," Frank (Jerry Stiller) relives the traumatic memory of cooking a meal that gave his platoon food-poisoning. The Adagio plays as we witness the militia clutching their stomachs and reaching for trash cans.

[36] Frank Lehman, "Transformational Analysis," 5.

subject of analysis. In fact, I argue that Horner's scores provide a perfect setting to analyze what music (at least in Horner's mind) fit particular emotions and scenarios, including frisson-inducing moments. Horner (in a perhaps less artistic but more business-savvy and time-efficient move) frequently recycles cues from other films to fit narratives with similar emotional underpinnings.[37] For example, consider the motive in Figure 4.1 (harmonically analyzed using Richard Cohn's methodology: triads with a minus sign are minor, while triads with a plus sign are major), which can be heard in both *Casper* (1995) and *Jumanji* (1994). In the case of both films, this cue follows the protagonists of either *Casper* or *Jumanji* as they wander into areas filled with the potential for mischievous harm to befall them — either by ghosts or monkeys, depending on the film.

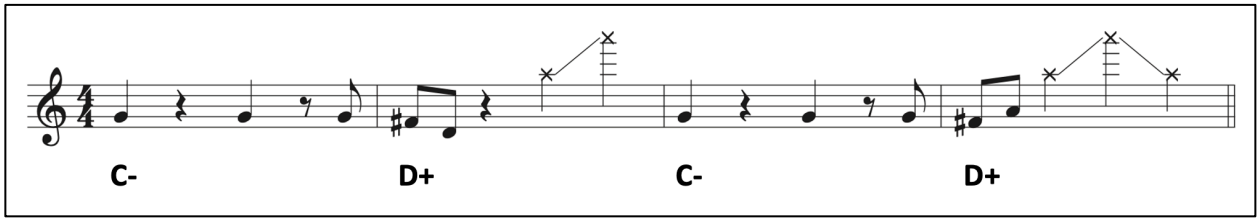

Fig. 4.1 – Cue from *Casper* (0:20:53) and *Jumanji* (0:25:10)

As a framework for my analysis, I turn to Richard Cohn's hyper-hexatonic system.[38] In Cohn's article, he is primarily concerned with navigating

[37] This compositional approach is not unique to Horner. Another more modern example could be found in the works of Hans Zimmer. A brief examination of his scores for *Muppet Treasure Island* (1996), *Gladiator* (2000), and the *Pirates of the Caribbean* series will yield a handful of quite similar musical cues.

[38] Richard Cohn, "Maximally Smooth Cycles, Hexatonic Systems, and the Analysis of Late-Romantic Triadic Progressions." *Music Analysis* 15:1 (1996), 9-40.

around two spaces: first, he lays out a foundation of movement within a hexatonic system, consisting of set class 6-20, achieved by alternating P and L transformations as shown in Figure 4.2. Movement from one triad to its clockwise neighbor, Cohn labels as T_1. The T_1 transposition is maximally smooth; that is, one pitch shifts only by one half-step while the other two pitches of the triad remain the same. This maximally smooth process is repeated around the hexatonic circle until we return once again to the starting chord. Also of note within Cohn's hexatonic system would be the T_3 transposition, which Cohn refers to as a hexatonic polar relationship. Although

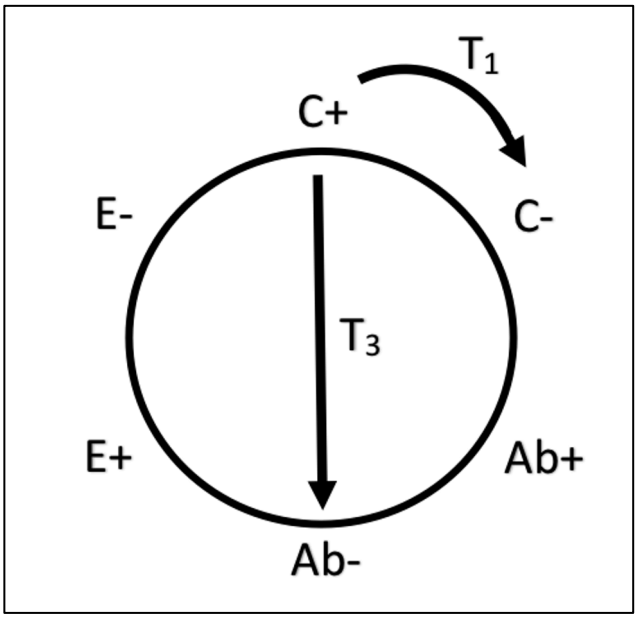

Fig. 4.2 – The Northern Hexatonic System With T_1 and T_3 Transpositions

the two chords comprising hexatonic poles belong to the same group of pitches, they bear no common tones between themselves. They divide the set of six tones equally: three and three.

Second, Cohn expands his hexatonic vision to a hyper-hexatonic system, which incorporates the four distinct hexatonic systems present within a 12-PC aggregate, as shown in Figure 4.3. In this system, Cohn is primarily interested in maximally smooth movement between hexatonic systems, though he teases the concept of hyper-hexatonic polar relationships (motion between north and south or east and west hexatonic systems as designated by my arrows in Figure 4.3) in some of his analyses.

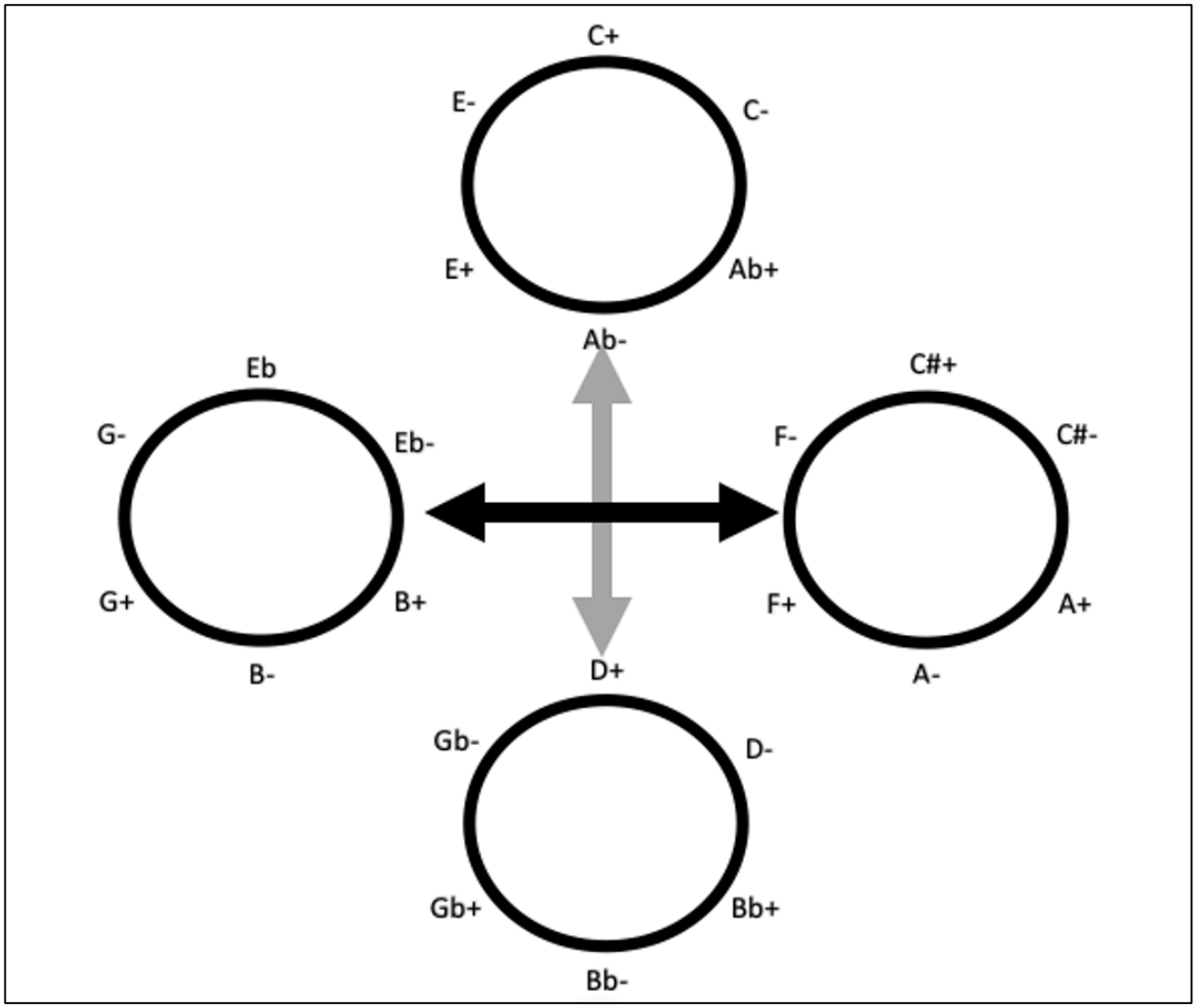

Fig. 4.3 – Hyper-Hexatonic System

In this chapter, I will focus primarily on movement between hyper-hexatonic poles (hereafter HHP); that is, the pair of northern and southern or eastern and western hexatonic spheres. In so doing, I will also move the level of analysis away from the "hyper" level and back to the "Tactus" level. To put it another way, I am most interested in labeling the specific chords within hexatonic systems and their HHP transformations rather than just the HHP systems themselves.

If we superimpose the northern hexatonic sphere over the southern hexatonic sphere, we can observe that the six pitches of the first are all two semitones away from the six pitches of the second. This parallelism initially led me to assume (incorrectly) that the LRLR combination, which moves us from C+ to D+, fulfills the "law of the shortest way." However, by analyzing this function on the *Tonnetz* (a sort-of conceptual gameboard where interlocking triangles represent triads which share certain pitches), we can see a glaring error, as shown in Figure 4.4: While LRLR, shown by the dotted arrows, does indeed move us from C+ to D+, replicating this operation does not return us to C+, but instead onward to E+. Alas, this function, although it will eventually return us to C+ by means of the whole-tone scale, does not do so within two operations, rendering it ineffective for my analysis of HHPs.

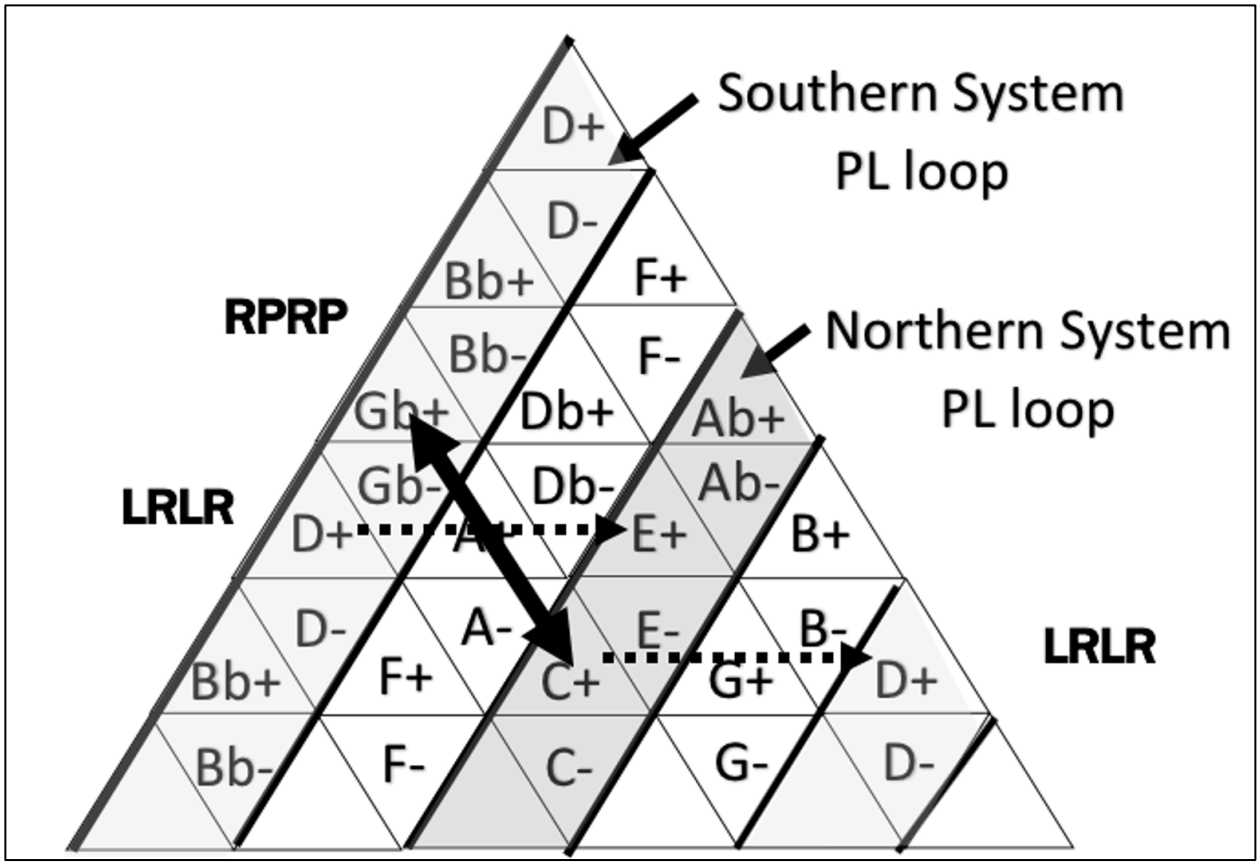

Fig. 4.4 – HHP Transformations Fulfilling the "Law of the Shortest Way"

Luckily, there is another transformation that contains the same level of movement between poles, satisfying the "law of the shortest way": RPRP (shown in Figure 4.4 as solid arrows). By performing this transformation once from C+, we arrive at G♭+. Performing the transformation again will return us to C+. Thus, we have found the combination of transformations which most efficiently move between HHPs.

When we map this new function between the northern and southern hexatonic poles in three-dimensional space, we are visually rewarded with a 240° spiraling motion, as shown in Figure 4.5. This spiraling motion is

confirmed as correct when we recall that the *Tonnetz* is not flat, as was shown in my *Tonnetz* of Figure 4.4, but a spiraling torus.

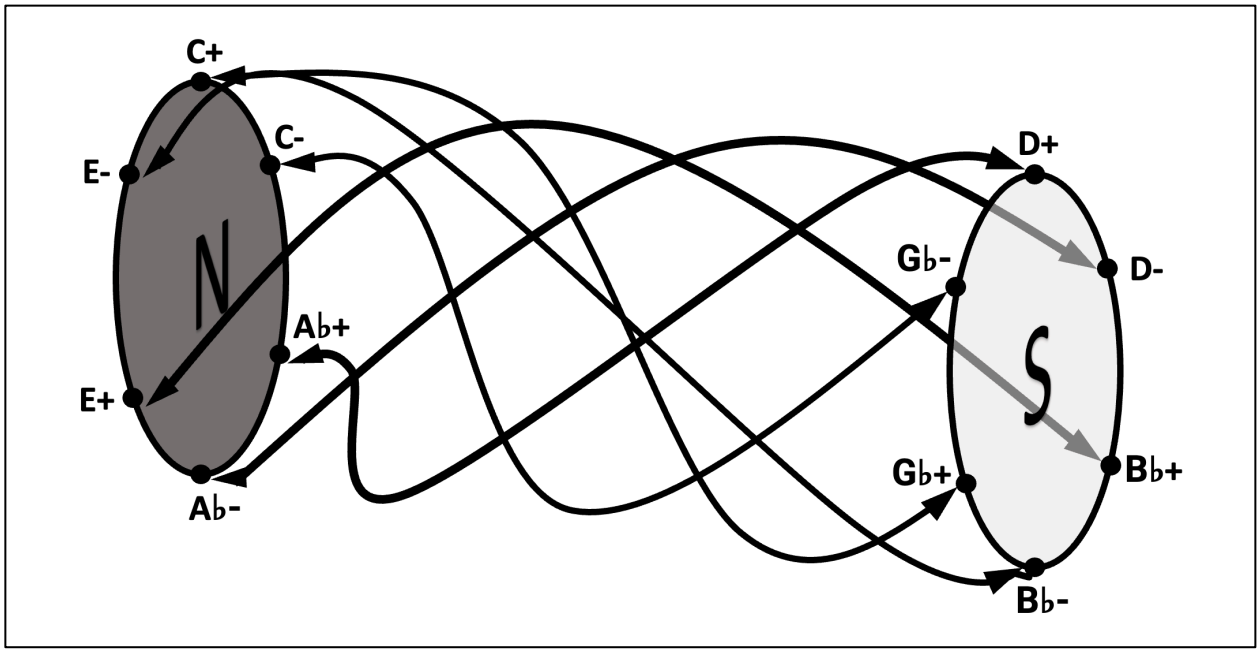

Fig. 4.5 – 3-D Rendering of HHP Transformations

Thus, one can express movement between two chords contained within any HHP relationship in the following equation: $\mathbf{T_X + RPRP = HHP_{4+X}}$ (mod 6), where X is the number of maximally smooth transpositions clockwise around any given hexatonic sphere. With X = 0 as our identity function, we are ready to move on to application of this analytical process. I will first give a brief synopsis of *Jumanji*, then shift focus to three musical cues that evoke frisson, analyzing each to find potential HHP relationships.

Narrative

Based on the 1981 children's book by Chris Van Allsburg, *Jumanji* is a film set within the fantasy adventure genre. The plot centers around a young

boy, Alan Parrish, and begins in the late 1960's in the fictional industrial city of Brantford, New Hampshire. Alan's father, Sam, is the owner of the local shoe factory, which provides the main source of industry for the small town.

The film begins as we witness young Alan desperately biking away from a group of school bullies. He races to his father's shoe factory as a place of safety. His well-meaning but uninformed father instructs Alan to face his fears rather than run from them, which leads Alan back outside and into the hands of his attackers. After their violent encounter, Alan walks home past a construction site (adding insult to injury, the bullies also stole his bicycle). The sound of beating drums stops Alan in his tracks. He finds the source of the drumbeat: a boardgame (called "Jumanji") entrenched in a pile of dirt and debris. After a quick unearthing, he takes the board game home.

That evening, Alan and Sam get into an argument which results in Sam storming out of the house while Alan yells that he'll never talk to his father again. Distant drumbeats draw Alan back to the mystical boardgame, which he and his (potential) girlfriend Sarah begin to play. After an unfortunate turn of events emanating from the game, Alan is sucked into the gameboard while a swarm of bats chase Sarah screaming from the house.

The film jumps forward to the 90's, where Alan's house (now in decay), has been bought by the Shepard family: Aunt Nora with her niece Judy and nephew Peter. The children have recently lost their parents in a car accident and are dealing with that grief. One day, the kids find Jumanji and begin to play. Their actions lead to Alan being released from the game, now as a thirty-

year-old jungle man who slowly realizes where he now is. They reconnect with Sarah, who is still trying to deal with what she experienced because of Jumanji, and together they play the game hoping to undo the mayhem that the game has unleashed upon them and their town.

After several exotic mishaps including stampedes, monsoons, and quicksand, they finally finish the game, which reverts everything back to the 60's — to the very evening Alan and Sarah began that fateful game. Sam walks back in the house, claiming to have forgotten something. Alan runs to his father, giving him a loving embrace. The two share a heartfelt moment. Later, Alan and Sarah dispose of Jumanji, going on to live happy lives.

Analysis

I now turn to an analysis of three motives heard at various moments in Horner's score. Each cue is heard in succession in a single point in the film, which I will address after my analyses. The first cue features the French horn, propelling through a mostly diatonic melody and distinguished by its initial leaps of 7ths or octaves. The horn melody pushes toward a cathartic release in the distant key of B♭ Lydian, where a lush, cinematic string section takes over to give the full orchestral effect.

In the second cue, shown in Figure 4.6, we hear the tender, delicate sounds of a string quartet, perhaps employing mutes. Their somber harmonies are punctuated by full orchestra swells with harp arpeggiation. Here, melody is subsidiary to harmony, which lies in the forefront of this cue's focus.

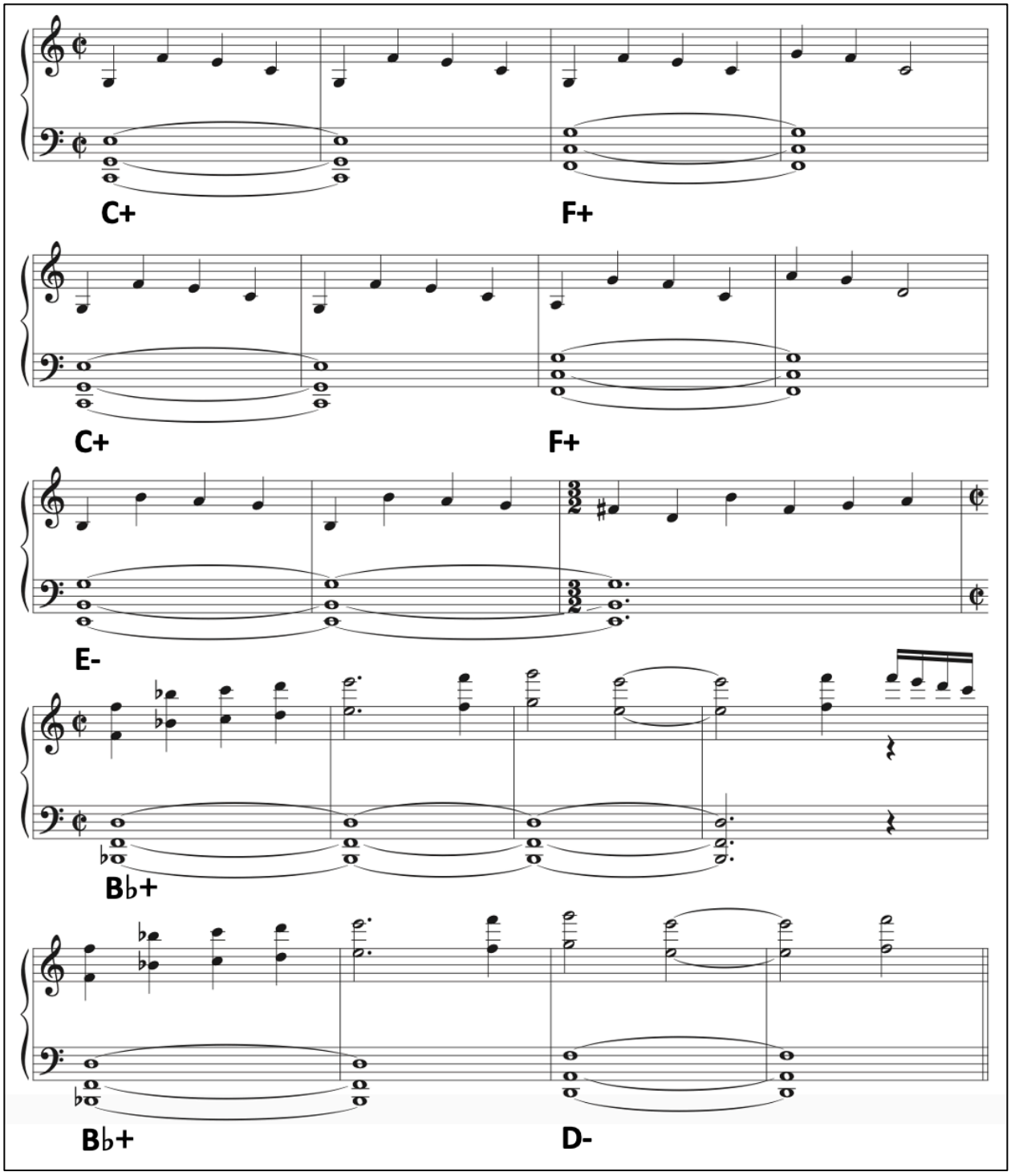

Fig. 4.6 – French Horn Cue

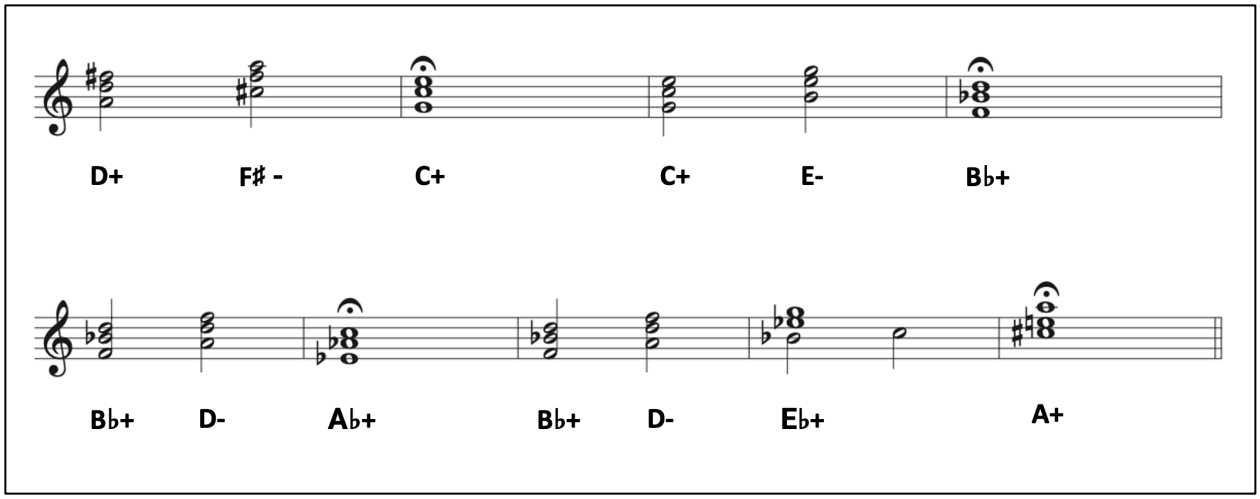

Fig. 4.7 – String Quartet Cue

The third cue places the oboe in the spotlight, with the harp laying down a simple Lydian structure underneath the oboe's simple octave gestures. After two phrases, the oboe gradually floats away in sweet melancholy.

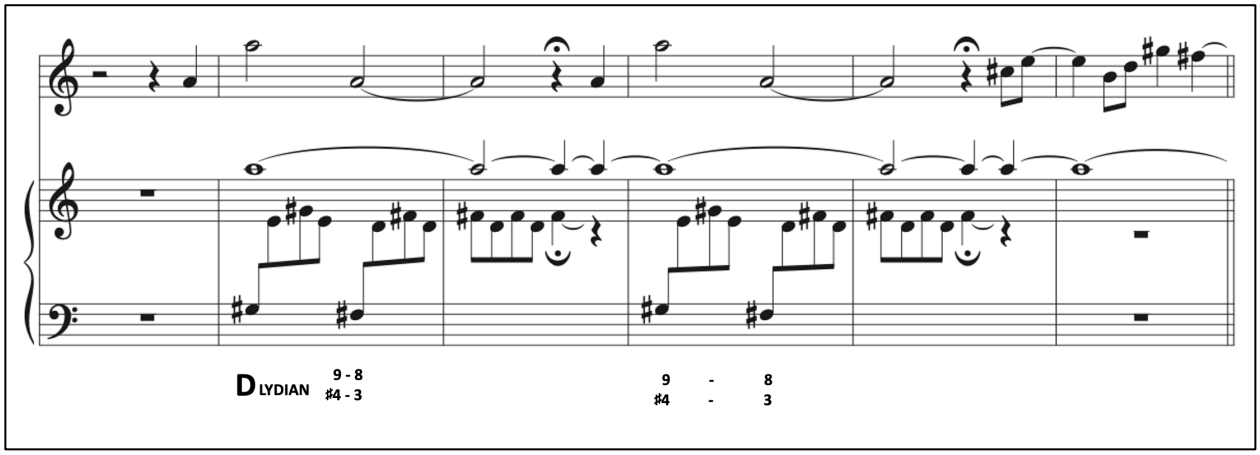

Fig. 4.8 – Oboe Cue

Since it contains the most harmonic movement, let us begin by analyzing the string quartet cue. In Figure 4.9, we can see (in brackets) the particular three-chord progression that is subsequently modulated three times: D+ moves

by T_5 to F♯-, then down by HHP_3 to C+. This progression could perhaps be described using Roman numerals (I to iii to a ♭VII via modal borrowing). Using strictly neo-Riemannian analysis, we can see that each three-chord progression begins with a *Leittonwechsel* transformation (a transformation that has been linked to a variety of meanings[39]). In either case, those analyses do not functionally explain the sense of closure we feel after each HHP_3. By labeling the progression as I have, I can understand that these seemingly disjunct chords associate with each other quite neatly when navigating the HHPs. Furthermore, the *entire* sequence (mms. 1-11 of figure 4.6) can be tidily contained within one pair of HHPs, since the sequence drops by whole-step. After observing the pitch collection of chordal roots available within an HHP, it

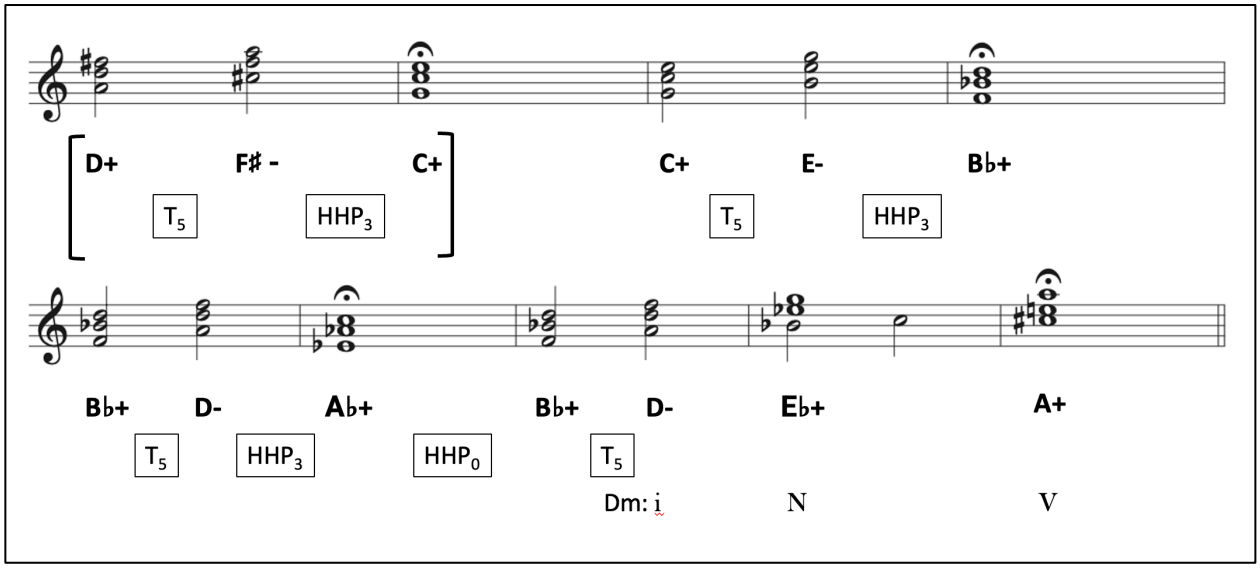

Fig. 4.9 – Analysis of String Quartet Cue

[39] For further reading on some of this transformation's associations, see Scott Murphy, "Scoring Loss in Some Recent Popular Film and Television," *Music Theory Spectrum* 36/2 (2014): 295-314.

will come as no surprise that movement between HHPs can often be entrenched within one of the two whole-tone scales (set class 6-35) present in our 12-tone collective.

In the final three measures, we can effectively shift our analytic gaze from using HHP analysis to roman numerals, closing the example with a clear half cadence in the final measure. The music has abruptly shifted from pantriadic harmonic fluctuations to a style far more common within the Western art music canon.

In the horn cue, we see very little in terms of HHP movement. The majority of the excerpt employs diatonic transformations from "tonic" to "subdominant" or "mediant" (if we feel entirely comfortable labeling these chords in such a strictly tonicized way). There is, however, one exception, which occurs at the most cathartic moment of release, as shown in Figure 4.10: E- transforms to B♭+ (complete with Lydian inflection) through a HHP_3 transformation — the same type of transformation used in the string quartet cue.[40]

In the oboe cue, there is no harmonic motion to speak of. What we can address is the cue's use of the Lydian mode (and, by extension, the use of the raised fourth scale degree in the other cues). If we were to boil down the Lydian mode (in its modern treatment) to its essential characteristics, I believe most would agree that it functions similarly to a major scale through its use of the

[40] Transformations of a tritone have also been shown to signify distance, travel, or a sense of novelty. For further reading on the subject, see: Scott Murphy "The Major Tritone Progression in Recent Hollywood Science Fiction Films," *Music Theory Online* 12/1 (2006).

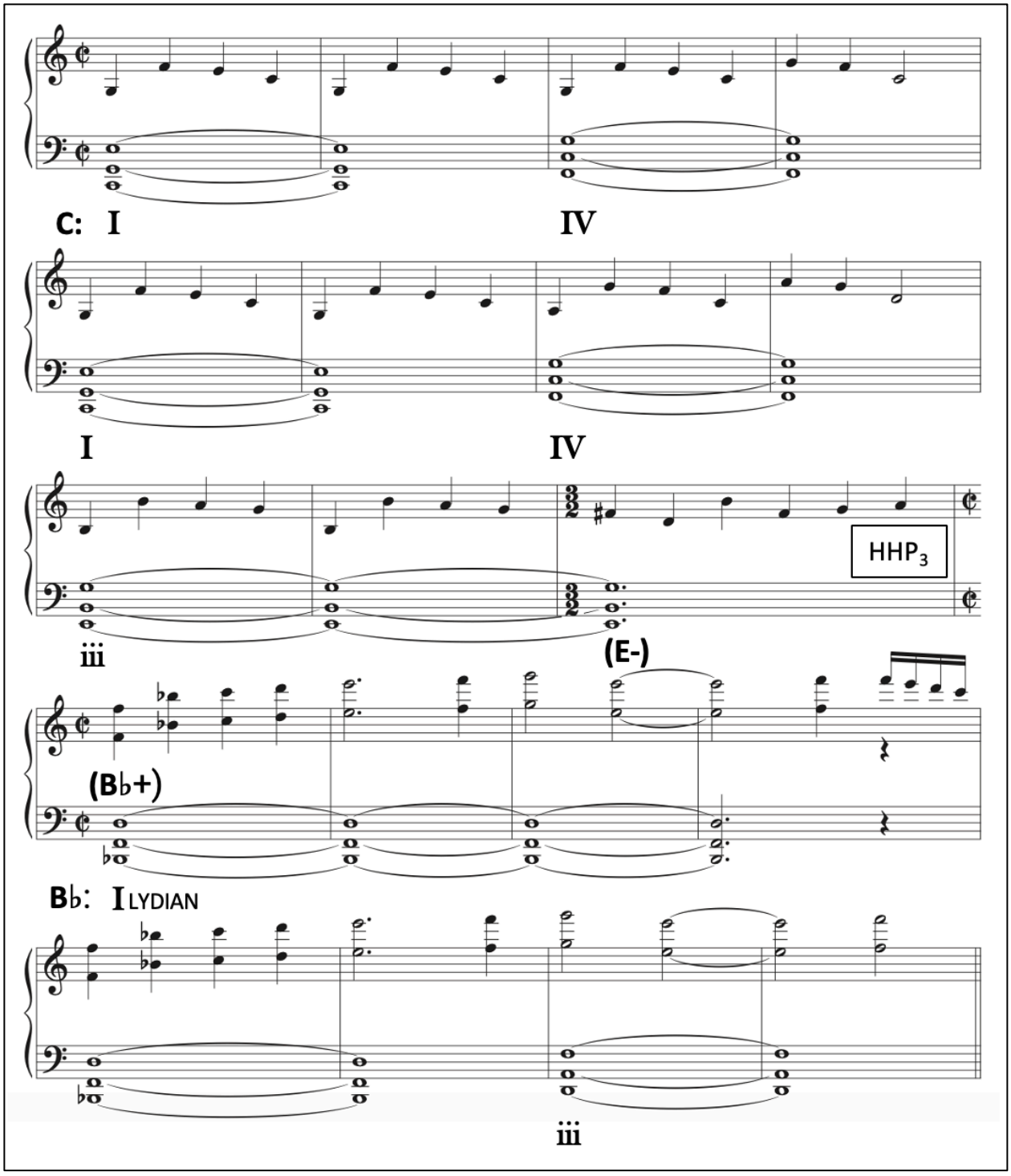

Fig. 4.10 – Analysis of French Horn Cue

raised third scale degree but adds the raised fourth scale degree as an extra "coloristic" element. Within the HHPs, we can contain all three elements described. Given a tonic of "C", we can use a T_4 or $_5$ transposition to find "E", and we can also use a HHP_3 or $_4$ transformation to get our "F♯". In essence, the Lydian mode encapsulates a sort-of miniature HHP set.

Analyzing these cues as I have draws out two main take-aways: first, Horner employs HHP transformations at key moments — not with every chord change. Second, Horner employs the Lydian mode, which functions as a quasi-extension of the HHP movement found elsewhere in his music. But are these cues placed at moments in the film that could create frisson? If they are, we can conclude that Horner uses these tools when he wishes to tug at the audience's heart strings.

Analyzing a scene from 00:34:56, we can hear all three themes within just a few minutes. At the beginning of the scene, the adult Alan has escaped from his imprisonment within the Jumanji gameboard and, not understanding what has happened, runs from his house into town. What he first encounters is a run-down city center facing a post-industrial decline. Shop windows are boarded up; statues are graffitied; his thriving childhood town now lay crumbling. Unable to comprehend what he sees, Alan runs on toward his father's factory. During this scene, the melancholy French horn line appears, lending a somber, sonic gravitas to Alan's hometown discovery. At the very moment the scene shifts to an extreme wide shot of Alan running to the

factory, the cue undergoes its pivotal HHP_3 transformation, effectively juxtaposing what we've seen and providing some potential hope in Alan's mind.

Alan finally reaches his father's factory, which he finds to also be in ruin, like the rest of the town. Entering, Alan is flooded with memories and emotions. He sees movement up in his father's office and, almost out of habit, runs toward it. Instead of his father, Alan meets a person experiencing homelessness, who has been using Alan's father's factory as a place of refuge. The man tells Alan about his father's emotional deterioration following Alan's disappearance and reflects that perhaps no father has ever loved their child more than Mr. Parrish loved Alan. Up to this point, Alan seemingly had held onto the emotions from the fight he had with his father in the opening scenes of the film. Indeed, the father certainly displays the stereotypical rough exterior of the nuclear father figure that would create strained father-son relationships.

Musically, this moment in the scene is held together by the string quartet cue, which, in conjunction with the occurrences on screen, create some semblance of the sublime. A shift in perspective for the child-turned-man seems to occur just as the cue shifts from HHP movement to more normative tonal fluctuations. By ending with the half cadence, the cue seems to beg the question of what Alan will do with this new-found information. Will he forgive his hard-speaking but loving father?

The moment is quickly followed by the poignant melody in the oboe from the third cue that mirrors the bittersweet emotions of Alan, who has learned too late that his father truly loved him. The man has guided Alan to the

Brantford cemetery, where Alan's mother and father were buried just a few years before Alan escaped from Jumanji. The stagnancy in harmonic movement mirrors the shock and loss that surely encompassed Alan, who just had his whole world drop away. The Lydian inflection provides just enough semblance of HHP movement to keep the goosebumps coming.

If this conglomeration of cues has been any indicator, it is clear to me that when the film calls for a moment of heartfelt beauty, Horner maintains specific harmonic foundations upon which he can build his score. Of these framing ideas, it would seem that he reserves transformations between hexatonic poles for key moments while he applies the Lydian mode more liberally to establish an overall sense of wonder and delicateness. Unlike the standard approach to attach motivic material to a specific character, idea, or location, Horner instead employs these motives to convey a particular sensation of sentiment.

If these previous three cases have not been enough to convince the reader, please consider that in the rest of *Jumanji,* these cues appear several more times: each time, either Alan or one of the other main characters experience a moment of beauty, emotional tenderness, or sublime revelation.[41] For example, the string quartet theme is also heard in 00:21:50, while Peter is in bed, awake well past his bedtime, looking longingly at a picture of his late parents.

[41] For reference, see the following timestamps in the film: 00:21:50, 00:30:28, 00:32:20, 01:15:27, 01:32:12, and 01:36:50.

Finally, although Horner may be unconventional in some of his motivic treatment, he does maintain other traditional elements, such as motivic transformation. One transformative element in particular revolves around the theme originally presented by the string quartet in Figure 4.7, as shown in Figure 4.11. What Horner has done is effectively (though not exactly; it is now in a diatonic setting) inverted his original theme. The first instance of this motivic transformation occurs at 01:15:27. In this moment, the grown Alan is chastising Peter, who has been crying for some unknown reason. Alan comes to the realization that he has been acting just like his father, stops, and adjusts himself to be more understanding of Peter's situation (when we comedically find out that Peter, who has been becoming more and more like a monkey, is in pain due to his new tail being stuck inside his pants). This melodic development is not lost to the attentive listener, who may make association based solely on orchestration, since this cue also features the string quartet.

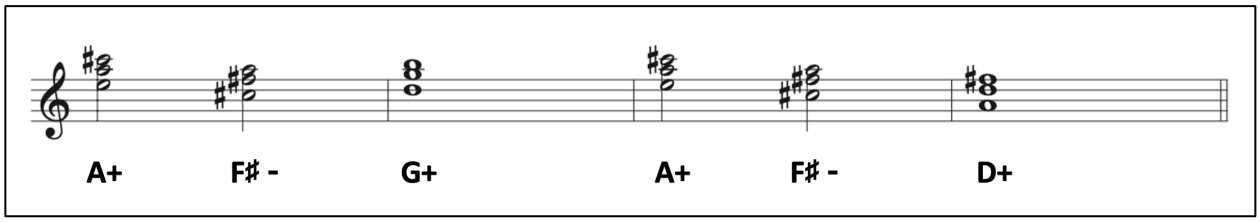

Fig. 4.11 – Development of String Quartet Cue

My HHP analytical technique has proven effective in analyzing the score for *Jumanji.* It has helped me correlate disparate chords between hexatonic poles, identify particular transformational tendencies in Horner's score, and tease out a loose association between HHP movement and the Lydian mode.

After my work on this chapter, I have noticed several strengths and weaknesses with my method of HHP analysis. The biggest strength I've seen is in its ability to precisely label relationships between triads that would otherwise be difficult, or at least cumbersome, to label by means of Roman numerals or even neo-Riemannian transformations. Also a positive: HHP analysis can quickly be used to identify relationships existing within a reductive HHP world. In Figure 4.12, we can see the twelve potential HHP transformations with their accompanying HHP label. Here, I have employed Scott Murphy's nomenclature for transformational analysis, where "M2m" would stand for a major triad transformed up two half-steps to a minor triad.[42]

HHP_0	HHP_1	HHP_2	HHP_3	HHP_4	HHP_5
M2M	M2m	M10M	M10m	M6M	M6m
m2m	m10M	m10m	m6M	m6m	m2m

Fig. 4.12 – HHPs with Murphy's Transformational Labeling

By presenting the data in this way, we can see an interesting duality and cyclicity between these groupings. We can see that transformation is limited to up or down by whole-step or tritone. We can also see a problem.

[42] Scott Murphy, "Transformational Theory and the Analysis of Film Music," in *The Oxford Handbook of Film Music Studies,* ed. David Neumeyer. (New York: Oxford University Press, 2014): 471-99.

The glaring pitfall for HHP analysis is that for any HHP label, there are two potential chordal relationships. Some are only mild variances (HHP_1 has two options which both move by whole-step and both possess one major and one minor triad) while others are more disparate in nature (both HHP_3 or HHP_5 could move by whole-step or tritone). With such variety possible, I find that this labeling system needs more refining before it can most accurately portray the sound of the music. When I see HHP_5, I should be able to associate one particular sound to that symbol. Perhaps there is a way to add more specificity to HHP labeling? My guess is that there likely is not a way to be any more specific, due to the need for bilateral movement within an infinitely looping torus. Perhaps specificity within HHPs is unattainable.

Although this dual labeling conundrum displays a weakness of the HHP analytical process, HHP analysis does serve to somewhat effectively limit the scope of analysis in a unique way. Furthermore, HHP analysis plays well with other analytical techniques, though it doesn't always provide all the details I would hope for on its own. For one example, there is currently no way within HHP analysis to analyze movement from a chord in the Northern sphere to a chord in the Eastern sphere. For another example, I have cited two pieces from the work of Scott Murphy that uses primarily neo-Riemannian vocabulary to draw extra-musical associations with film scores. HHP analysis (since it is of my own obscure design) obfuscates correlations that might be drawn from other theoretical literature.

I believe in the future there might be more work done to expand the perspective of HHP analysis to incorporate elements from neighboring hexatonic systems. As it is currently, HHP analysis is almost forced into a supplemental position due to its inability to describe all transformations within our westernized 12-tone system. And yet, the role of "sidekick" analytical approach may be exactly what HHP analysis *should* be.

The scope of my thesis requires me to leave HHP analysis with the conclusion of this chapter, but I feel that, if nothing else, HHP analysis has served to help me better understand how Horner, the musical businessman who molded the sonic fingerprint of countless films in the 80's, 90's, and 00's, created frisson-inducing music.

CHAPTER V

WALL-E

> "When you work in live action, a lot of times you can get a mood (a prevailing mood) and just slap it onto an image and let it sit for two minutes and say to a director, 'this isn't going to change much, but it's going to give you an idea.' I learned in *[Finding] Nemo* that I couldn't just hit [the director] with the moods and say, 'Isn't that great?' I really had to make transitions. A lot about writing music for animation is how music moves from one feeling to another, and how does it get from that one feeling to the other."[43]

These sentiments from composer Thomas Newman reflect his compositional attitude in creating the score for the 2008 animated Disney/ Pixar film, *Wall-E*. Newman is likely best known for his hauntingly minimalistic scores for such cinematic masterpieces as *The Shawshank Redemption* (1994) or *American Beauty* (1999). Perhaps in an effort to challenge himself artistically, Newman branched out from live-action drama by composing the score for the animated film, *Finding Nemo* (2003), which led to him collaborating with director Andrew Stanton, with whom he would work again for *Wall-E* five years later.

By expressing his concerted effort to focus on the transitive space between emotional cues, Newman highlights a key reason for my focus on his score for *Wall-E*: by turning an analytical eye toward these pivotal moments, I can seek to tease out how Newman attempts to create frisson. Frank Lehman claims that frisson emerges when there is either "the violation of a local

[43] Thomas Newman, "Notes on a Score" *Bonus Materials, Wall-E*, Disney/Pixar, 2008.

harmonic expectancy [or] the build-up and discharge of tonal tension."[44] In this chapter, I will build upon Lehman's claim to include a violation of localized timbral expectancy as grounds for frisson.

Lindsey Collins, Co-producer for *Wall-E*, says this of Newman's compositional style: "To create that Tom Newman sound, which is that sound that you're, like, 'What is that? What instrument is he playing? How did he get that?' It's because he actually takes a lot of time and [...] experiments with a lot of different orchestrations."[45] Because Newman's compositional sound is so intrinsically linked to orchestration, it makes most sense for me to analyze his work from an embodied cognitive approach. To do so, I turn to the framework put forth by Chelsea Oden.[46] Building upon the work of Philip Tagg, Oden proposes that we can cognitively analyze music using a four-step approach: react, experiment, categorize, and synthesize.[47] In the first step, we analyze our own reactions to the music. How does experiencing the music make us feel? What emotions or sensations are trudged up by engaging with the music? In the second step, we experiment with the music, imagining how things might be different under various other conditions. What if that brass fanfare was played by kazoos? What if that raging synth bass ostinato was instead played on harp? In the third step, we categorize our findings on a chart. Each row would contain the instruments we have encountered within the music. Each column

[44] Frank Lehman, "Hollywood Harmony," 172.
[45] Lindsey Collins, "Notes on a Score" *Bonus Materials, Wall-E*, Disney/Pixar, 2008.
[46] Chelsea Oden, "There is a Body in the Sound: Timbre and Embodiment in the Overlap of Film, Music, and Dance," [Doctoral Dissertation, University of Oregon], (Eugene, OR: UO Campus Scholars Bank), 2021, 64-73.
[47] Philip Tagg. "Analyzing Popular Music: Theory, Method and Practice." *Popular Music* 2 (1982): 37-67.

would be broken down into an index (descriptive terms for the instrument itself), icon (if the music symbolizes a real-life object, such as flutes mimicking a bird whistle), and symbol (descriptive emotions the instrument evokes based on one's cultural backgrounds and expectations). Finally, in the fourth step, we synthesize our findings. By reflecting on our findings from the previous three steps, we may be able to tease out a deeper interpretation of the scored scene.

Since much (though certainly not all!) of Newman's sound world revolves around synthesized sounds, it will also prove beneficial to describe certain timbres using elements of the ADSR sound envelope (See Figure 5.1). Since the birth of the synthesizer in the middle of the 20th century, sound waves have been able to be specifically altered using the basic parameters of attack (A), decay (D), sustain (S), and release (R). Attack refers to how quickly the sound wave reaches its peak moment. For example, a sharp attack from the joint of the thumb on a bass string creates the slap bass sound heard in many funk tunes. Decay refers to the time it takes for a sound wave to drop from its peak moment to its sustained resonance. Sustain refers to the maintained level of the sound wave after the peak and until it is released. Returning to the slap bass example, if the slapped sound is cut short with a palm mute, we could say that the decay is rapid, while the sustain is nearly non-existent. Now imagine that the bass player doesn't palm mute after their slap: the ringing tone of the string after their thumb has left the string would be the sustain. It could be filled with vibrato, a la *Seinfeld.* It could be fuzzy from distortion. Or it could have an altogether different timbral quality. Finally, the release refers to the

time taken after the sound wave has "spoken" for it to dissolve into nothingness. Returning one last time to the slap bass, you could imagine the bass player in a closet or in a cave. They could play the exact same way in both areas, but the sound in the cave would have a longer, more gradual decay as opposed to the sound in the closet. We can talk about any sound using these four parameters, but it serves especially well to describe synthesized sounds in this way, where each parameter of the sound envelope can be specified precisely. Before leaving this point, it is also critical to state that timbre is experienced just as much as it is created.[48] Describing the ADSR sound

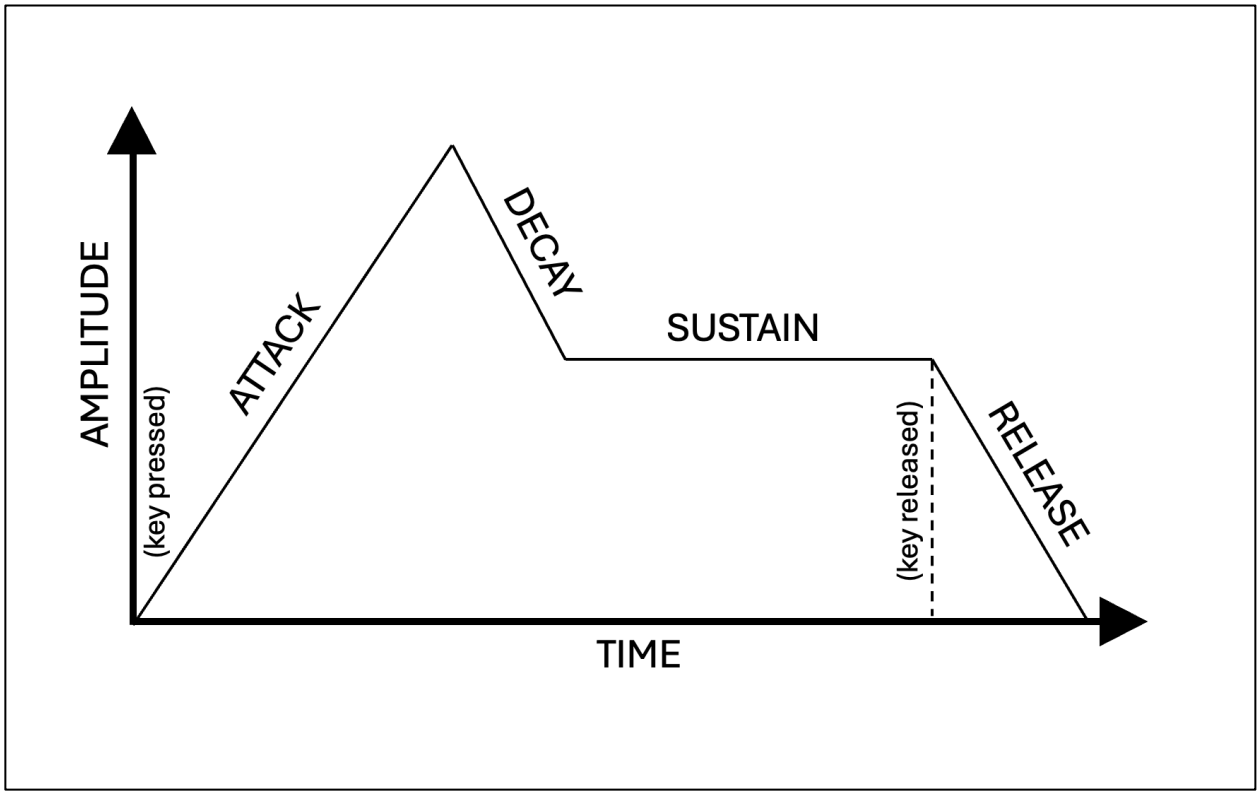

Fig. 5.1 – A Basic Schematic of an ADSR Sound Envelope

[48] For further discussion on this point, please see: Rebecca Leydon, "Clean as a Whistle: Timbral Trajectories and the Modern Musical Sublime," *Music Theory Online* 18/2 (2012).

envelope of a sound is only half of the sonic experience; the other half of the experience is shaped by the one doing the listening. By combining the ADSR labels of a sonic source with Oden's embodied approach, we are able to capture a clearer verbal likeness of a given timbre.

Narrative

In a post-apocalyptic world done in by rampant consumerism and wasteful neglect, robots are all that are left behind on earth to clean up while the last surviving humans have escaped on an intergalactic space craft, the Axiom. One of the last functioning janitorial robots, the boxy and rusty Wall-E, has approached a peaceful type of sentience and singularity. When not on its day job of stacking piles of trash blocks, Wall-E hunts for interesting knickknacks, plays with its pet cockroach, and enjoys watching golden-age Broadway musicals on an antiquated TV set.

One fateful day, a sleek, new robot arrives on earth named EVE. EVE has been sent by the space-drifting humans to see if life is sustainable on earth once again. Wall-E falls lens-over-wheel in love with EVE, who does not initially share the obtuse robot's sentiments. As Wall-E shows EVE its collection of doodads, it inadvertently triggers EVE's return to its spaceship by presenting EVE with a plant. Not wanting to leave EVE's side, Wall-E stows away on the rocket returning them to the Axiom.

On board the Axiom, humanity has grown weak. Years of inactivity and the effects of microgravity have left humanity bloated and unable to walk or

truly function autonomously. Robots dictate everything that the humans think, feel, and eat. The captain of the vessel, McCrea, is only a figurehead; the real pilot and commander is the nefarious AI pilot nicknamed Auto.

EVE's return to the spaceship spurs an upheaval of the status quo. McCrea is unable to find EVE's plant, which has been stolen away by Auto's sneaky first mate, GO-4. Had McCrea gotten the plant, it could have been placed in a Holo-Detector, which would trigger the Axiom's return journey to earth. McCrea falsely deems EVE's memory faulty for saying it had found a plant and sends the frustrated robot to diagnostics to be repaired. Wall-E follows close behind. In the rusty robot's wake, Wall-E leaves both humans and robots learning how to truly live life. The Axiom erupts in chaos as Wall-E breaks EVE (and other actually dysfunctional robots) out of diagnostics.

In the disarray, the two star-crossed robots catch GO-4 tucking the missing plant in an escape pod set to self-destruct. They are able to retrieve the plant, which they take back to McCrea. Auto reveals to the captain that, even though they have indeed found signs of life, Auto has been given express orders by its creator to not allow humans to return to earth. In full mutiny, Auto sends the plant, Wall-E, and EVE down a trash receptacle as McCrea is confined to his quarters.

In a final fight for control, McCrea is able to overpower Auto and regain command of the ship. Wall-E is nearly destroyed in an act of self-sacrifice to return the plant to the Holo-Detector but succeeds in placing the plant where it is needed. The ship jumps through hyperspace back to Earth, and EVE rushes

Wall-E back to the rusty robot's home for repairs. Through a quick bout of engineering surgery, EVE saves Wall-E. Unfortunately, the process also resets the robot's memory bank. A hollow shell of what Wall-E once was stares blankly back at EVE. In a bout of longing and remorse, the sleek robot gives Wall-E a mournful "kiss" (a zap of static electricity), which magically restores Wall-E's memory and quirky persona. Robots and humans work together to restore the Earth back into a flourishing planet, one plant at a time.

Analysis

Wall-E is a film primarily driven by sound and visuals, as opposed to dialogue. This is mostly because the two main characters are (for the most part) nonverbal robots. However, the creative choice for absentia of speech really brings the score for the film to the foreground, making the whole thing ripe for musical analysis. Within this chapter, I will only analyze the beginning cue from *Wall-E* (00:00:46 – 00:08:03) to observe how Newman may use timbre to induce frisson. I will begin by moving through each of Oden's four steps for embodied cognitive analysis of the cue, then conclude by analyzing any perceived violations of localized timbral expectancy.

Oden's first step is to analyze my reactions to the cue. After the Disney/Pixar studio logos are shown, I am visually met with stunning visions of celestial bodies accompanied by the sounds of "Hello, Dolly!", a late 1960's musical by Jerry Herman. The music follows the sonic tradition established by golden-age musical composers such as Richard Rodgers, Frederick Loewe, or Irving Berlin. Thick, lush, tremolo strings highlight harmonic changes,

twinkling like the stars in the sky. The tune used, “Put on Your Sunday Clothes”, is chipper and optimistic in nature; the character Cornelius sings about the possibilities waiting for he and Barnaby if they leave their small “hick town” for the glistening “slick town.” The tune and lyrics leave me yearning for a more simple, hopeful time, which is only reinforced by the antiquated recording quality of the music. The nostalgia of the tune complements the sense of wonder I experience viewing the cosmic bodies on screen.

At 00:01:50, I begin to hear some ambient white noise that sounds like cold, rushing winds. The sound juxtaposes the otherwise warm-sounding Broadway musical. On screen, I see an earth barren and overrun with the waste of humanity. The contrast between screen and sound creates an emotional rift within me, leaving me confused. The technique of composing anempathetic music (or scored music directly opposed to dramatic developments on screen) is not unique to the score for *Wall-E*. However, it does serve to provide a feeling of unease: based on what I’m hearing, I should be seeing fields of green and other blissful bucolic scenes, not a deserted wasteland of refuse.

At 00:02:06, the low frequencies of Herman’s musical are filtered out. The Broadway music we have been experiencing as nondiegetic end up being music listened to by the main protagonist, Wall-E, as it goes throughout its daily chores. The shift from nondiegetic to diegetic pulls me into the story, helping me become invested in the robot before my eyes. The robot takes heaps of trash and compacts them into “tidy” blocks that become rows, squares, and

finally pyramids of garbage. The music that I once felt was nostalgic and filled with wonder has become nothing more than background noise during a busy day's work.

As the screen pulls back out to show the title for the film over a wide shot of garbage, "Hello, Dolly" is sonically replaced by Newman's original score. Beginning at 00:03:20, descending arpeggios in the harp with slow strings and perhaps a synth pad contrast any warmth that remained from the Broadway music. I literally feel shivers as Wall-E transverses the barren wastelands, devoid of human life. The lone and open harp arpeggios, antithetical to the harp's heavenly association, leave me feeling very much alone. Material from Newman's score is developed over the next minute of screen-time, sending me adrift in its sparse swirls of harmonically ambiguous strings and harp.

Some particularly menacing half-step movement in the bass strings is heard at 00:04:22, as I witness dozens of broken-down Wall-E units littered among the garbage and debris. The strings briefly give way to horns as Wall-E swaps out its worn-out treads for some in better condition belonging to another Wall-E unit which has long since been out of commission. I feel nothing of the typical heroics associated with horns from more typical Hollywood scores. At 00:05:15, major triads in the horns descend by major thirds, giving me a sense of hopelessness and tragedy.

Just as I feel that I'm in for an hour-and-a-half of desolate, depressing, post-apocalyptic wastelands, Wall-E enters its "home": a storage unit that the robot has filled with various trinkets and unique bits of garbage (00:06:07). The

atmosphere feels more home-like visually — Wall-E even takes off its treads by the door just as humans might take off their shoes after a long day of work.

The music snaps out of its anempathetic tendencies and introduces a new instrument: the celeste. Often used to evoke sentiments of childlike innocence and wonder, the celeste is likely used in this moment to convey Wall-E's childlike fascination with what we may view as mundane objects. What the instrument conveys in this moment is a certain zeal for life and living that passes on to me, the viewer. The strings that were tense and obtuse warm up in the coziness of Wall-E's home. I feel more at ease overall; my breathing and body relax.

At 00:06:45, Wall-E focuses on the diegetic scene from "Hello, Dolly!", now playing on the robot's outdated, makeshift television. The return of the musical heralds the return of all the lush, romantic strings as well as the typical warmth and general optimism that I associate with them. A vocal duet between lovers conveys all the sappy, feel-good emotions associated with romance in film. This opening cue comes to a close as Wall-E peacefully drifts off in a state of low-battery-induced sleep.

Following Oden's analytical model, now that I have analyzed the cue and my own reactions to it, I can shift to experimenting with how the cue might have been different under altered conditions. Before I begin experimenting, I must clarify that although Newman didn't compose the bits of the cue from "Hello, Dolly!", he was surely aware that they were being used and was certainly conscious of the sound world in which they resided. Due to this fact, I

feel that I can include them in the overall cue to discuss how they interact with Newman's original material. Furthermore, whether or not Newman composed the music almost becomes a moot point; the simple fact that the final artistic conglomeration is being consumed as a whole by the viewer is grounds enough to analyze the cue as a whole.

What if Broadway music hadn't been used to bookend this cue? I believe Newman could have achieved a similar sonic signature of warmth and wonder on his own. However, using music that the audience might already know adds another level of intimacy and safety into the listening experience that new music often can't provide. Furthermore, Herman's music provides the opportunity to hear lyrics, something typically absent from Newman's compositional output[49] and something in short supply in this dialogue-light film. The lyrics hold their own analytical worth that extend beyond the focus of this chapter.

What if different Broadway music had been used? The idea is intriguing. The sentiment might have been somewhat the same: consider Rodgers and Hammerstein's song "Oh, What a Beautiful Mornin'" from *Oklahoma!* It might have been wildly different: consider Boubil and Schönberg's song "On My Own" from *Les Misérables*. Regardless of orchestration, the lyrics from the song or the plot of the musical would likely shift the viewers' experience. The tune from *Oklahoma!* could align the beauty of an Oklahoma morning with the beauties of

[49] In fact, later in *Wall-E*, Newman scores an original bossa nova style tune while Wall-E accompanies the powered-down EVE on several "first dates". Even though the cue uses the human voice, Newman opts out of including any lyrics.

the universe but might lead one to feel almost criminal viewing the wastelands of earth paired with the line that "everything's going my way." Conversely, "On My Own" would certainly bring the miserable quality of life Wall-E is experiencing to the forefront but would perhaps be too on the nose of a reference. I could see myself not wanting to become invested in Wall-E's experience, expecting the robot to waste away at any moment.

Turning my focus to Newman's composed portion of the cue, what if the notes and dynamics remained but the orchestration was altered? Instead of descending harp arpeggios we could have heard descending piano or organ arpeggios. Consider the sound envelopes of each, shown in Figure 5.2. At first glance, the harp and piano are not that dissimilar: both have rather sharp attacks, longer decays, no ability to sustain the soundwave (excluding external modifications), and a very gradual release (perhaps due to pedaling, room echo, or after-effects). However, the piano's attack is more sharply inclined than the harp, and the decay and release occur at a quicker rate than the harp. The sharper attack of the piano (to my ear) sounds more assertive as opposed to the harp. The decay and release provide little difference, though it might be added that Newman certainly added some reverb in post-production to the harp in the recording for the cue, which would extend the release of the harp even further. The sound envelope of the organ is drastically different. While the attack of the organ and harp have more similar slopes of attack, the organ has the distinct ability to sustain its pitches until the key is released, which gives it a far less

fleeting or lifelike quality. Also, depending on the stops used, the organ could add an aggressive quality to the music.

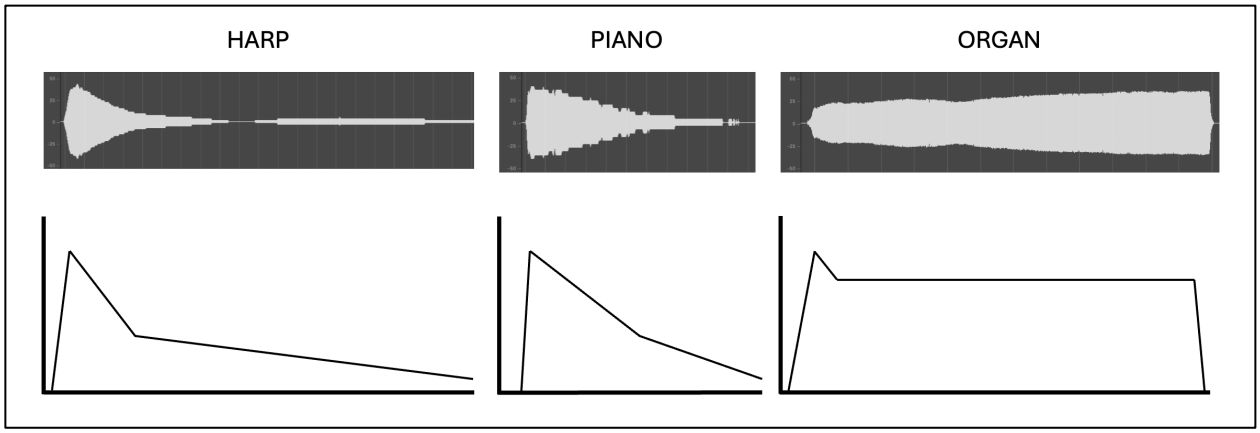

Fig. 5.2 – Soundwaves and Envelopes of a Harp, Piano, and Organ

And what of the strings? Imagine that instead of those droning strings we were to hear bagpipes or a square-wave synthesizer. In addition to the in-your-face quality of the bagpipes contrasting the hovering, lonely quality of the strings, the bagpipes would make me consider cultural affiliations for the instrument. Is this taking place in the Scottish Highlands? Does Wall-E come from some Northern island manufacturer? Likewise, the square-wave synthesizer would obscure the narrative for the scene. My associations with that synthesized sound hearken back to early video games, leading me to wonder if Wall-E might be existing in some sci-fi simulation realm. A string orchestra provides a fairly neutral sonic setting, at least for the Hollywood-indoctrinated Western listener such as myself.

Finally, let's swap out the celeste for something else. What if we used flute? It would still have that high-pitched range. However, the flute has a

definite and abrupt release (when the player stops blowing across the embouchure hole), whereas the celeste has a more gradual release (as long as the key is held or the sustain pedal is depressed). The release of the celeste gives me a sense of longing, wanting to hold onto each note as long as I can, whereas the release of the flute leaves me in a state of expectation, waiting to see what comes next.

After analysis and experimentation, I can begin to categorize my findings. In Figure 5.3, one can see my correlations for harp, strings, and celeste. Regarding the indexical meaning of these instruments, the harp and celeste both indicate a degree of isolation by having only one performer. Although the strings are performed by many players, they too can reinforce the narrative of loneliness by altering their timbre to reflect a state of loneliness, which could be brought on using *sul tasto* or mutes.

	Harp	**Strings**	**Celeste**
Index	- Plucked - One player - Resonant - Small space	- Bowed - Ensemble - Lush - Large space	- Keyboard - One Player - Shining - Intimate space
Icon	- Rain	- Wind	- Metal - Music Box
Symbol	- Heaven - Purity - Magic	- Romance - Mournful - Spooky	- Childhood - Innocence - Mystery

Fig. 5.3 – Correlations for Harp, Strings, and Celeste

Ironically, two of the three instruments present icons from nature: Harp could represent drops of rain or water in general, while strings can sound like rushing wind. In this scene devoid of nature, the harp almost seems like water iced over, creating a crystalline, ethereal feel. The wind was already brought in with synthesized white noise earlier in the cue, so it stands to reason that the strings would continue that iconic allusion. The use of the celeste brings a metallic tinge into the cue's sound world, which also makes complete sense since we visually are in the metal home of a metallic robot as the instrument is heard.

Each of the three instruments bear strong symbolism within Hollywood and Western society at large. The harp, often associated with cherubic beings, can invoke the sound of divine or moral purity, such as the contrastingly tame and wholesome conclusion to Modest Mussorgsky's hellish landscape in "Night on Bald Mountain." Though strings can bear a wide array of symbols, they are perhaps most often associated with romance (i.e. Erich Korngold's love theme in the score for the 1938 film, "The Adventures of Robin Hood") or mourning (i.e. Samuel Barber's "Adagio for Strings"). The celeste conjures up images of childhood, creating a sense of wonder, innocence, or even a bit of mystery. A great example of the celeste's symbolic associations can be witnessed in John Williams' score for "Harry Potter and the Sorcerer's Stone".

Finally, I can synthesize my findings. The indexical meanings of the harp, strings, and celeste all reinforce the lonely nature of the protagonist, Wall-E. Without hardly getting to know the robot (again, this is only the first

eight minutes of the film), I can understand that Wall-E desperately wants and needs social connection and relationships. I also want that social need filled for Wall-E, because I have associated the robot with all the feel-good qualities of this first musical cue.

The iconic meaning of the instruments Newman uses have strong ties to nature. A central theme of the film is the environmental impact that humans have had (and continue to have) on the earth. By using the harp and the strings, Newman subtly introduces the idea that the world, barren as it may seem at the beginning of the film, can once again become a flourishing oasis of life.

The symbolism of the harp and celeste give us a glimpse of Wall-E's character: pure, unadulterated, and curious. The use of strings can also allude to the love story that will emerge between two unlikely robot companions while simultaneously mourning the sorry state of the world left behind by reckless overconsumption.

Now that the cue has been sufficiently analyzed from an embodied perspective, I can conclude by briefly addressing moments of timbral transition. This beginning cue has three main shifts in timbre: first, at 00:03:20, when "Put on Your Sunday Clothes" is subverted by Newman's original score; second, at 00:06:07, when Newman's score shifts to mirror entering Wall-E's home; and third, at 00:06:45, when the music shifts back to Herman's "It Only Takes a Moment".

Of these three shifts, the first is certainly the most jarring. Going from Herman's musical to Newman's score changes the textures and timbres of any heard instruments: peppy two-step Broadway orchestra becomes a sparsely orchestrated string section with solo harp. Whereas we might expect such a drastic change to result in frisson, the opposite result occurs. When Newman's score enters, it serves as an effective emotional gut punch. Why is this the case?

I believe that the cause for this state of anti-frisson is because of the degrading quality of the "Hello, Dolly!" portion leading up to Newman's scored material. At the beginning of the cue, the emotion of the music generally matches the emotion of the screen; put another way, the positively-valenced affective state of wonder as we view galaxy formations aligns with the positively-valenced affective state of nostalgia as we hear the old-time Broadway musical. As the cue continues, the music desynchronizes its affect entirely from the affect of the visual stimuli. While the anempathetic music does create a feeling of unease, it also carries with it an assumption that audio and visual stimuli will, at some point, resynchronize. When this does actually happen (when Newman's score is introduced), expectations are realized rather than thwarted. Frisson has no substantial claim on realized expectations. And, since the sum state of both music and visuals are negatively valenced, a negative emotional reaction (as sublime as it may be) is the most likely response.

Similarly, the second shift in timbre at 00:06:07 does not provide fertile grounds for frisson. Expectations from a shift in locale on screen are that the sound world will shift in accompanying fashion. When it does, although we shift from negatively-valenced affects to positively-valenced affects, we still are left in a state of met expectations — subliminal though they may be.

In contrast to the first two timbral shifts, I find that the third shift at 00:06:45 actually does provide a space for frisson to occur. At the surface level, this final shift should arguably be the least likely place for one to experience frisson: we go from synchronized positively-valenced affects to even more positively-valenced affects. Many of the same timbral qualities (excluding the human voice and the celeste) persist between this third shift. Warmth, gentleness, and peace would be descriptive qualities I would assign to both sides of the timbral shift.

And yet, when we consider the subject on screen, we can ascertain the cause for frisson. In our current, non-futuristic mindset, robots cannot experience emotion, let alone an emotive state as complex as love. Everything up to this point has only reinforced that narrative; although Wall-E does prove to be whimsical at times, the robot still (by and large) maintains its focus on the task for which it was ultimately designed. Consequently, when we hear a love song playing on the robot's TV, we expect that the robot will treat it as background noise, as it did with other music while it was working during the day. The excerpt from the love duet closes on an unabashedly clear authentic cadence, which effectively serves to reinforce the importance of what we are

witnessing unfold. The fact that Wall-E stops and takes notice of the moment on screen is unexpected; that the robot mimics holding hands extends even further beyond expectation. Wall-E has feelings. The robot feels the yearning for love, and the viewer consequently feels frisson.

CHAPTER VI

BEYOND HOLLYWOOD: SPIRITED AWAY AND MORE

Up to this point, I have maintained my focus on films produced within the cinematic studios of the United States, collectively nicknamed 'Hollywood'. In this final analytical chapter, I wish to extend my gaze to film scores beyond Hollywood; that is, I intend to analyze scores from a variety of studios existing outside of the United States. As a U.S. citizen, it has been my experience that I tend to consume film media produced almost entirely within the Hollywood bubble. When I consider that Hollywood fell behind both India and Nigeria for overall movie production over a decade ago,[50] it highlights the need to broaden my analytical scope beyond the United States. After all, in this increasingly connected world, there has perhaps never been a better time to experience artistry produced thousands of miles away.

To aid in cohesion within this chapter, I will apply the same analytic lens to each film score. My aim in doing so is not to compare each score's quality, nor is it to create some hierarchy of the musics created for film around the world, nor is it to assert some dominant form of analysis for international film scores. Rather, I side with Ethnomusicologist John Blacking, who argues that music is not a universal language but instead exists as a part of "human bio-grammar".[51] Whereas speech in one language can be translated from one

[50] Allison Rauch, "Nollywood: Nigerian Film Industry," In Encyclopedia Brittanica, April 13, 2025, Retrieved from https://www.britannica.com/topic/Nollywood.
[51] John Blacking, "Music, Culture, and Experience," *Selected Papers of John Blacking,* (Chicago: University of Chicago Press, 1995), 236-242.

language into another or be judged according to its adherence to or abstention from a set of grammatical rules, music exists and is very often perceived outside of these parameters. For example, we can privately make sense of Viennese compositions without knowing anything of that region's culture. Blacking suggests that this cognitive anomaly occurs supra-culturally: "If the artist [or listener, or theorist] who expresses personal experience may in the end reach universal experience, it is because he or she has been able to live beyond culture, and not for culture. […] When the grammar of music coincides with the 'musical' bio-grammar of the human body, in the most general sense, cognitive resonance can be felt and apprehended regardless of specific social experiences."[52] What Blacking is referring to as "bio-grammar" may be most loosely defined as the physiological and psychological experiences of the body, such as lived societal experience, as opposed to the strictly physical structures of the body that might be inferred from the ambiguous term.

Maintaining Blacking's perspective, I now turn to another ethnomusicologist to provide a basic framework for my analyses. Thomas Turino lays out four fields of music making, as shown in Figure 6.1.[53] Existing on a spectrum, music making ranges from participatory performance on the far left to studio audio art recording on the far right. Turino highlights the aspects of each of these four fields, which I will now briefly summarize.

[52] John Blacking, "Music, Culture," 240.
[53] Thomas Turino, "Four Fields of Music Making and Sustainable Living." *The World of Music,* 51:1, (2009), 95-117.

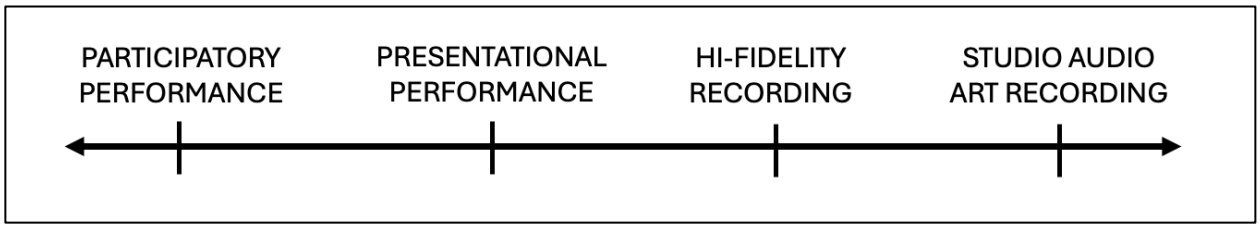

Fig. 6.1 – Turino's Four Fields of Music Making

Participatory performance is often (though not always) simplistic in nature and is intended to be communal in performance. Rather than focusing on the production of the performance, participatory performance highlights human interaction. Music making within the participatory performance field can lead to a sense of *communitas*, such as when members of a religious congregation join each other in worshipping through song. I find that participatory performance can even extend to embodied responses to music-making, such as humming along to a well-known or catchy song.

Presentational performance places a divide between performers and audience. There is an inherent expectation for quality from the performers; the audience must be entertained! The music within this field often has textural clarity, dynamic contrast, and leads the listener on a journey. Whenever it was that you last went out to see the local orchestra perform, watched a play, or viewed a movie, you were engaged in a presentational performance.

Hi-fidelity recording indexes a live recording. The more accurate the sound is to actually being there, the better. Hi-fidelity recordings carry a weight of "authenticity" and are often valued for their clarity in recording. Aficionados

of particular rock bands may have several “live” albums of their favorite group that represent Hi-fidelity recording.

Studio audio art recording has moved far away from the live fields of participatory and presentational performance. The intention for music made within this field is to create original, unique works of art. Sounds are often crafted digitally, with no real-world instrumental equivalence. This music-making field is often more focused on the musical product than it is on the process. Edgard Varèse’s *Poème électronique* is a prime example of studio audio art recording.

Now that I have described each of Turino’s four fields, I can describe how I will use this framework for analysis. First, I believe that the labels “diegetic” and “non-diegetic” can be applied to Turino’s continuum without too much debate. Diegetic music extends beyond simply performing its role in the soundtrack to actually interacting with the characters on the film. Conversely, non-diegetic music pairs well with studio audio art recordings. Non-diegetic moments in a soundtrack exist somewhere beyond the world of the characters on screen. Non-diegetic music serves as an independent agent, providing its own commentary on happenings within the film. Both diegetic and non-diegetic exist on a blurred continuum, where music may evolve between these two labels.

Second, I believe that when film scores move from right to left along Turino's continuum, the music provides likely space for frisson to occur.[54] This second point is certainly more debatable. I will attempt to field two questions preemptively.

Why must the music flow from right to left for frisson to occur? Turino already established the correlation between participatory performance and *communitas* (which is, of itself, a frisson-inducing event). I believe that the closer we move to music making within this communal field, the more likely we are to experience frisson. This is not to say that frisson cannot be experienced in the other three fields, or that frisson can't be experienced flowing along the continuum from left to right, or that frisson must occur when music making flows from right to left; only that frisson is *more likely* to occur when flowing toward the field most directly associated with frisson.

Can music not invoke frisson by remaining in one field? As stated before, Turino already presents one field (participatory performance) that engages with frisson on a regular basis. I personally feel that any one field of music making can invoke frisson independent of the other three fields. However, I also believe that leftward flow between fields is *more likely* to engage with frisson. I return to Frank Lehman to elaborate on this point. Frisson, Lehman claims, is induced by "the violation of a local harmonic expectancy [or] the build-up and

[54] Frisson, as stated most definitively in Chapter 1, is the fight-or-flight response triggered within a safe environment. The effect is a positively-valenced reaction that is both rewarding and desirable. There will not be space to adequately discuss awe within this chapter, but further research may prove that film music moving along Turino's continuum from left to right (toward the unknown or unmappable music of the studio audio art recording) could potentially incite awe in the viewer.

discharge of tonal tension."[55] I want to expand Lehman's explanation to include Turino's fields of music making. By violating the viewers' expectations for the movie soundtrack to remain in one music making field, frisson is likely to occur. Furthermore, the more that the viewer feels engaged in the musical performance accompanying the film, the more likely it will be for the viewer to experience frisson. Figure 6.2 updates Turino's fields to include my idea of "frissonic flow" as well as placement for diegetic and non-diegetic material. Let us move on to some brief analyses of several films to illustrate my expansion of Lehman's concept.

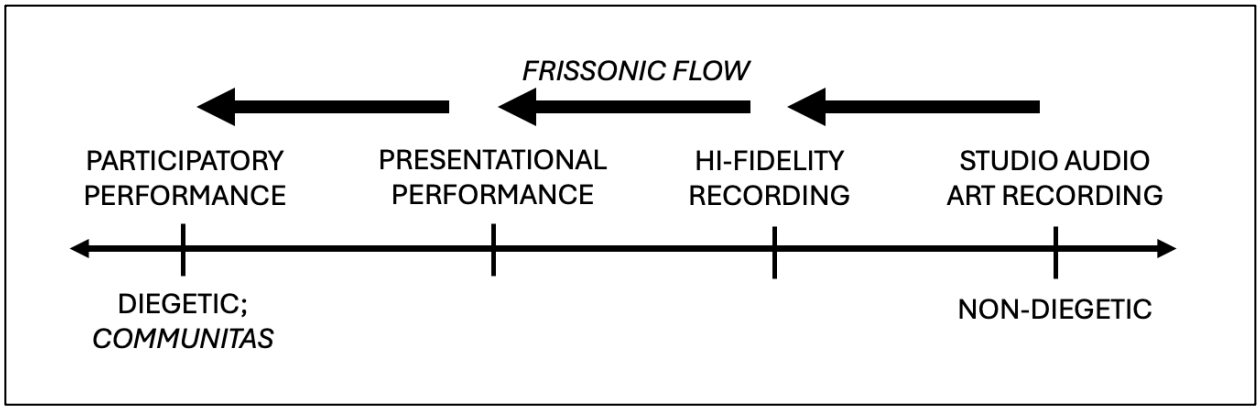

Fig. 6.2 – Frissonic Flow

Analysis

First, I turn to the soundtrack for Giullermo del Toro's 2006 film, *El Labarinto del Fauno* (marketed in English as *Pan's Labyrinth*), composed by Javier Navarrete. The film follows the young Ofelia, who, along with her

[55] Frank Lehman, *Hollywood Harmony*, 172.

pregnant mother, has been whisked across the Spanish countryside to be with her sadistic stepfather, a Francoist captain of the totalitarian regime. Matching the terror that Ofelia experiences in real life dealing with the brutalities of war and her stepfather, the young girl engages with otherworldly creatures seemingly straight out of a dark fairy tale.

The score for the film is hauntingly beautiful. Full string sections give way to various Western orchestral instruments at times to add sonic flavor, dissonance, and intrigue. In Turino's fields, we would place this soundtrack somewhere between a hi-fidelity recording and a presentational performance. Much of the soundtrack exists within the non-diegetic realm I would expect of any typical Hollywood film. And yet, three cues within the film break the expectation for music-making stasis.[56] Each of these three cues involve the same musical motive, a simple nursery song, hummed by a treble vocalist, as shown in Figure 6.3.

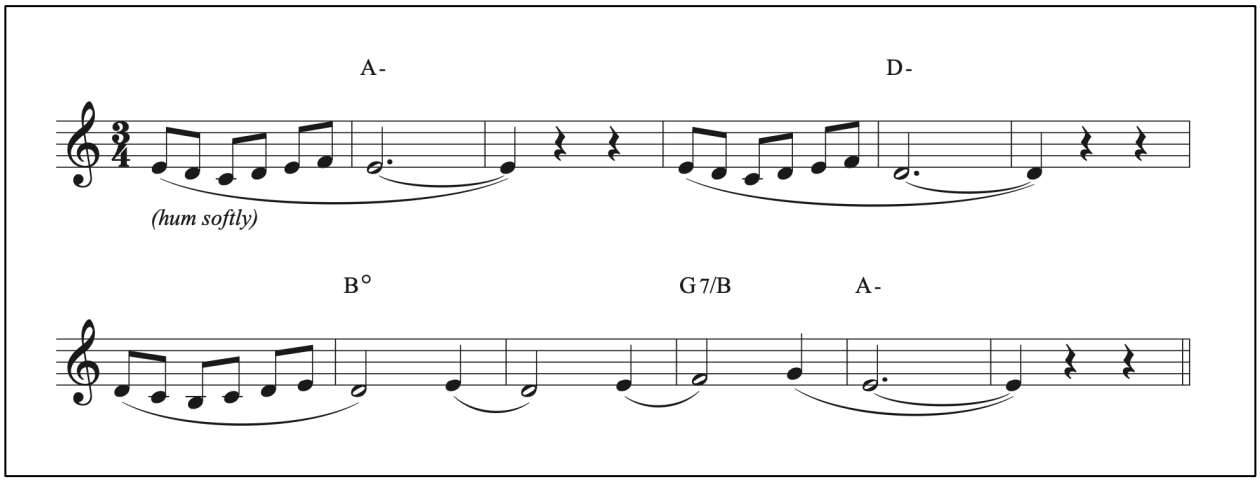

Fig. 6.3 – Segment from "Hace Mucho, Mucho Tiempo"

[56] One of these cues only becomes diegetic retrospectively as the film progresses.

The first cue occurs at the very beginning of the film (00:00:51). After some printed dialogue introducing the historical setting of the film, we witness Ofelia laying in a pool of blood, gasping what seem to be her last breaths. The second cue occurs in the middle of the film (00:50:24), as the terrified Ofelia is comforted by her matron, Mercades. In this cue, we hear the same melody from the beginning and now can deduce that the phantom acousmatic voice we heard from the beginning of the film belongs to Mercades. We have shifted to at least partially diegetic music.[57] The final cue occurs at the end of the film (01:49:33), where Mercades is again humming the nursery song to Ofelia during the girl's final moments of life. Each cue is clearly placed at emotionally climactic moments where frisson would be a clearly desired outcome.

While the Western orchestration of the bulk of Navarrete's soundtrack could reside somewhere between the presentational performance and hi-fidelity recording fields, the use of Mercades' diegetic voice provides an atmosphere for frisson by shifting more towards the participatory performance field. Even if we had not seen Mercades hum the simple melody to Ofelia, the use of the solo human voice engages with the listener in a way that instrumental music might not. *How does it feel for me to hum that melody? That is a simple melody. What if I hum along?*

Let's leave Spain and head East for India. The next score for analysis is Hrishikesh Mukherjee's 1971 film *Anand*, with score by Salil Choudhury. The

[57] The music is only partially diegetic because Mercades' humming is accompanied by orchestral instruments which are surely not in the room with the characters (unlike in Mel Brooks' 1974 film, *Blazing Saddles*).

film revolves around a jaded doctor, Bhaskar, who is introduced to the terminal but unusually cheerful Anand. The two grow to become dear friends through the final months of Anand's life.

Anand is very minimally scored, with only a handful of instrumental cues dotting the film's nearly two-hour run time. Of these, the score is again typical of what I might expect from a modern Hollywood film, with one notable exception: musical numbers. Drawing from a globalized influence of early Hollywood musicals mixed with traditional Indian epics, a distinctive element of Indian film (even before Bollywood films, as is seen with *Anand*) is the use of full-blown musical features. Sometimes the songs further the plot of the film, and sometimes they only serve as stand-alone entertainment.[58] In the case of *Anand,* each of the five songs in the film aim to further the plot.

Of these five songs, I want to focus on one placed at a pivotal moment for frisson. "Zindagi Kaisi Hai Paheli" begins at about 01:08:25. Before the song begins, we witness Bhaskar discussing Anand's condition with Renu (Bhaskar's love interest) in a discouraged and defeated manner. The screen then cuts to Anand, who is joyfully strolling along the beach, buying balloons only to let them go sailing off into the sky. The abrupt change of mood is reinforced by the cheerful nature of the music, driven by swung eighth-note rhythms and a gently rising and falling contour. A few seconds in, the screen cuts to Anand's face, as we see him smile and sing the first lines of the song.

[58] Perhaps another effect of globalization is accompanied by the rise of MTV: the hyper-focus on the musical number in Bollywood films.

"What kind of a puzzle is life? Sometimes it makes one laugh. Sometimes it makes one cry."

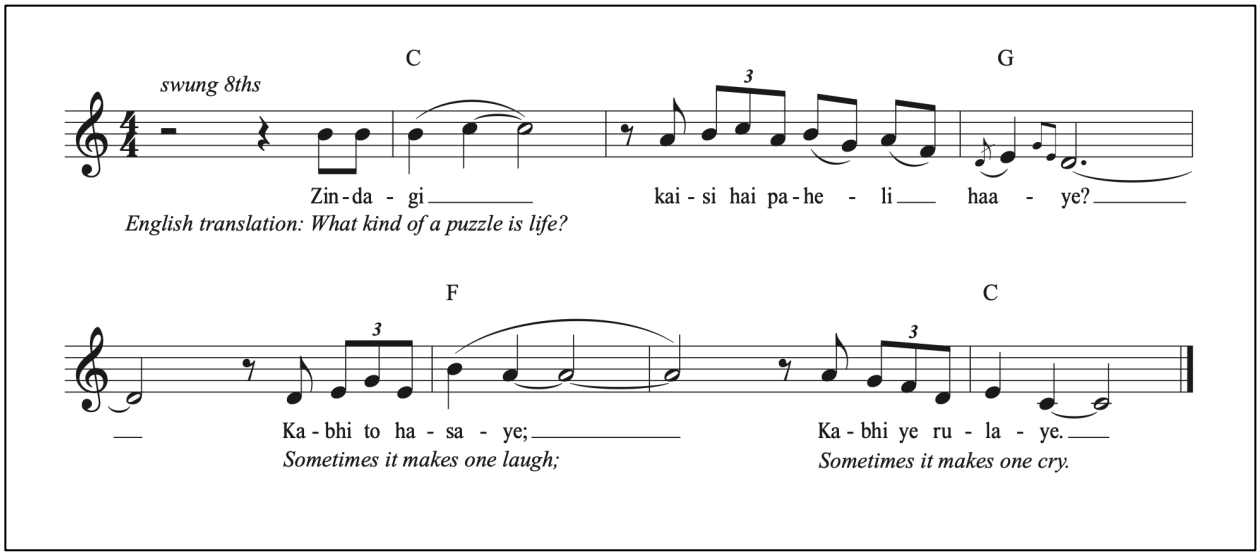

Fig. 6.4 – Segment from "Zindagi Kaisi Hai Paheli"

The nearly four-minute scene takes over emotionally to convey the complex mixture of joy and sadness that Anand is experiencing and serves as a prime location to experience frisson. In *Anand*'s case, like *Pan's Labyrinth*, the music making has become at least partially diegetic. Unlike *Labyrinth*, I feel that this scene from *Anand* resides more squarely in the presentational performance field of music making. The scene feels just like a music video, which is meant to be consumed as a performance rather than engaged with participatorily. And yet, I still believe that the shift from right to left (subtle though it may be) is enough to promote frisson in the experience of the viewer.

For an example that does not employ the human voice, let's shift our focus to 2018's *Lionheart*, a Nigerian film directed by Genevieve Nnaji with a

score by Kulanen Ikyo. The film follows the business-savvy Adaeze, who struggles to do what is right for her family's company after her father, Ernest, falls ill. She fights to prove herself worthy to inherit the company in a society that is fiercely patriarchal. Even though *Lionheart* deals with some heavy social issues, as a film this family drama is quite light-hearted; perhaps in part due to several pop-driven tunes inserted into the score. Unlike *Anand,* the songs remain nestled somewhere between presentational performance and hi-fidelity recordings (much like they would in a typical family drama film made in Hollywood). However, even though the voice is employed, I don't think that frisson is the end goal of these musical segments since they are not placed at emotionally climactic moments in the film. Instead, these pop-driven tunes often serve only as emotional breaks after tense moments in the story.

Rather than a cue involving the human voice, the cue that raises the hairs on my neck is purely instrumental. Beginning at 01:15:57, the cue follows a tense silence as Adaeze attempts to convince another business owner to merge with her family's company. As the music enters, we finally get to see that Adaeze's drive for business stems from a deep love for her family. She delivers a riveting monologue that will ultimately turn the tide of the film. At this pivotal moment, the music serves to drive home her message, not just to the other businessman, but to the audience.

Upon initial analysis, the cue is not anything sensational: a soft string section drones on, slowly shifting upwards, as a simple melody is played on what sounds like piano and mbira. And yet, this simplistic cue carries all the

emotional impetus that is needed to produce frisson. As with the previous two film cues, this instrumental cue resides somewhere near the realm of a hi-fidelity recording; certain elements pull it toward presentational performance like the fact that it is being presented as the soundtrack for a film, which is meant to be watched, while other elements, like the digital post-processing of the piano and/or mbira, pull it toward being a studio audio art recording.[59]

I believe that the use of the mbira may draw from external cultural associations to pull the musical cue toward communal music making and participatory performance. In the Shona culture of the Zimbabwae region, the mbira (a plucked idiophone with alternating metal tines) is typically an ensemble instrument played by several performers and is often performed at rites of passage (like weddings).[60] Though stemming from the region of Zimbabwae, a quick internet search will show that several mbira ensembles exist within Nigeria, likely due to globalization. Because of this, I find it reasonable to believe that the target Nigerian audience would likely associate the sound of the mbira with communal music making, which would make it more likely for them to experience frisson.

For a final example of frissonic flow being engaged in international film scores, I will turn to the music of Joe Hisaishi in Hayao Miyazaki's 2001 animated film, *Spirited Away*. The film follows a young girl, Sen, as she

[59] Turino would likely agree that music-making rarely falls neatly into only one of his four fields; hence, the existence of these four fields along a continuum.
[60] UNESCO. "Art of Crafting and Playing Mbira/Sansi, the Finger-Plucking Traditional Musical Instrument in Malawi and Zimbabwae." *Intangible Cultural Heritage* (2020).

journeys into the land of spirits. A series of misadventures follows the girl as she seeks to rescue her parents (who have been turned into pigs) and return to the real world.

Before delving into an analysis of Hisaishi's score for *Spirited Away,* I need to address some cultural aspects from Hisaishi's jazz-inflected score. Due to the influx of globalization in the 20th Century, jazz music arrived in Japan in the early part of the century. Taylor Atkins claims that the Japanese found in this musical style a sense of modernity that was simultaneously prized and rejected.[61] With the passing of the Allied victory in World War II, these conflicting sentiments crystallized: "Even in prosperous times, Japanese often speak of a feeling of 'yearning' (*akogare)* for American Lifestyles; how much more intense the feeling must have been in the context of defeat and privation."[62] Hisaishi's decision to compose in a jazz-influenced style, regardless of his artistic intent, certainly carries with it some amount of this emotional baggage.

Furthermore, Hisaishi chooses to compose in a method unique from most other film composers. Whereas the majority of Hollywood composers will write music to pre-recorded film they can already see, Hisaishi composes his scores first as an "image album", which are then released as promotional material several months before the film.[63] Thus, his music is likely perceived

[61] Taylor E. Atkins, *Blue Nippon: Authenticating Jazz in Japan* (Durham, NC: Duke University Press, 2001).
[62] Taylor E. Atkins, *Blue Nippon,* 171.
[63] Alexandra Roeder, *The Localization of Kiki's Delivery Service,* Mechadamia: Second Arc, Vol. 9, Minneapolis: University of Minnesota Press (2014), 258.

(at least, in part) as stand-alone musical material in a standard jazz idiom, with all of the connotations of popular songs found in the Great American Songbook. Indeed, his music could easily blend into one of the myriad "Fake Book" compilations made by jazz artists. For example, compare Figure 6.3 (a transcription of Hisaishi's tune "One Summer's Day" from *Spirited Away)* with Figure 6.4 (a transcription of Jerome Kern's jazz standard "All the Things You Are"). Both are in typical song forms ("One Summer's Day" is AB while "All the Things You Are" is AABA). Both include a brief introduction that contrasts the main melodic material. Both follow standard harmonic progressions found within the jazz idiom, such as the quintessential ii-V-I pattern. Perhaps most important to my research in this chapter, both bear simple, singable melodies with repeated notes that would strongly imply vocal delivery.[64]

Hisaishi's scoring style is deliberately sparse in scope, though admittedly more present than Choudhury's score for *Anand.* Earlier Hisaishi scores (such as the 1997 score for the English Dub of *Kiki's Delivery Service*) were rescored for their American release. Additional music was composed by Paul Chihara and inserted into the film to better suit American audiences' expectation.[65] Perhaps in a desire for artistic control, later scores for English dubs were composed entirely by Hisaishi, and one can see that the international audience does seem to coax a more involved score from the composer. Regardless, many

[64] In Kern's case, there are lyrics (penned by Oscar Hammerstein II) that inspired the melody. In Hisaishi's, I have been unable to find any indication of specific lyric inspiration for the melody (though he did add lyrics to the melody after the movie was released).
[65] Alexandra Roeder, *The Localization,* 254-267.

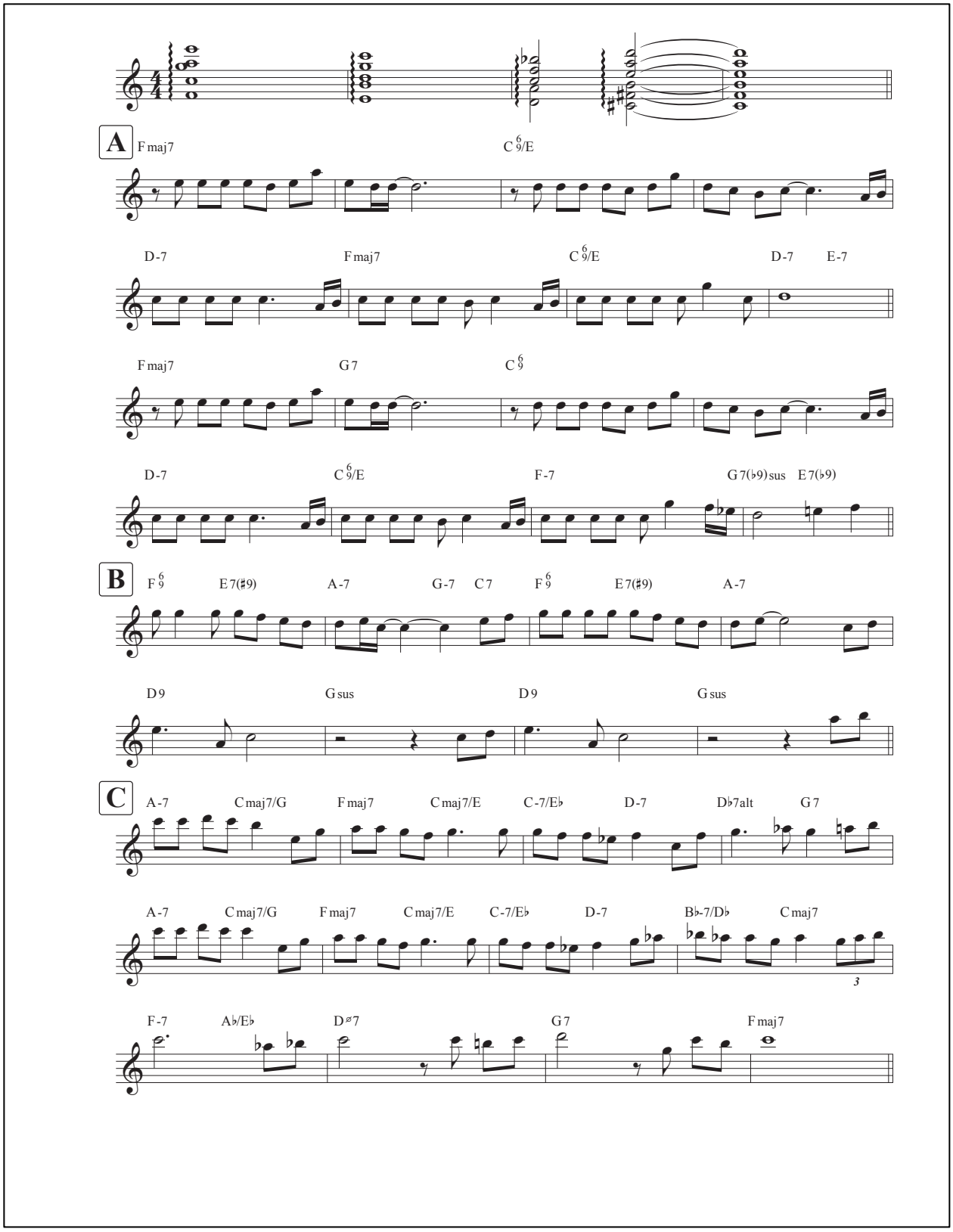

Fig. 6.5 – Lead-Sheet Rendering of "One Summer's Day"

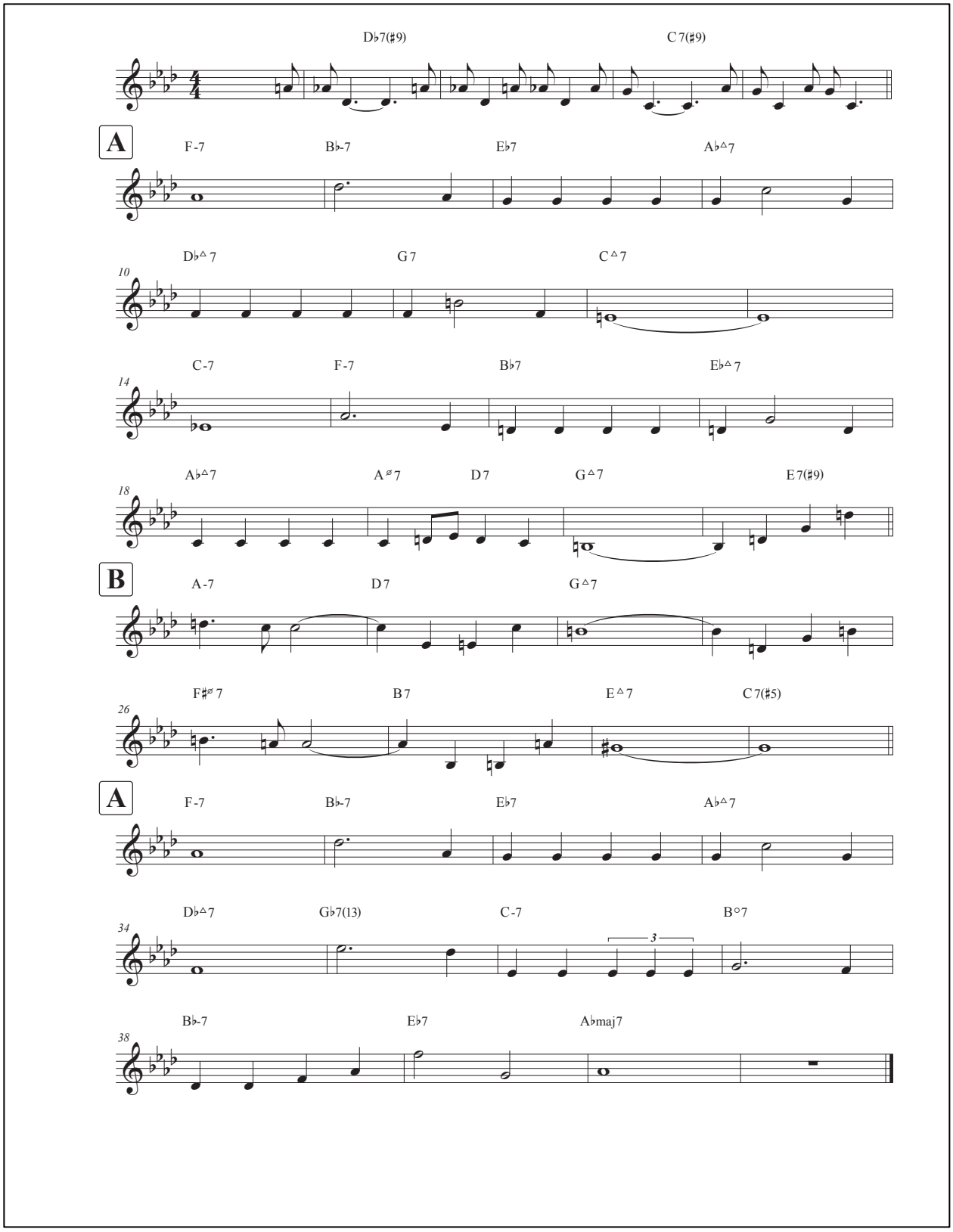

Fig. 6.6 – Lead-Sheet Rendering of "All the Things You Are"

of the cues from *Spirited Away* do not shift between fields of music making as much as simply shifting to and away from music making in general. However, I believe that the mixture of hi-fidelity recording and presentational performance that encompasses Hisaishi's "One Summer's Day" certainly also suggests movement toward participatory performance due to its jazz song associations. As such, each time that Hisaishi (in coordination with Miyazaki) chooses to employ "One Summer's Day" within *Spirited Away*, we can presume that the intent for the musical placement is to amplify the current emotions and engage with frisson since the jazz sound of the cue suggests vocal delivery.

The music from "One Summer's Day" occurs in four moments within *Spirited Away.* Each iteration of the song is performed in its entirety. All four moments are preceded by musical silence. The first cue containing the song is the beginning of the film (00:00:13). Sen is seen pouting in the backseat of her family's car as they are moving to their new home. The scene quickly taps into the liminal flush of emotions associated with relocating: excitement for a new beginning; mourning for the end of a phase of life; missing old friends while being unsure of the future. While the emotions conveyed are complex, the music helps amplify them all. The melody is quite simplistic; almost like a tune written for children. On the other hand, the jazz harmonization is fairly advanced, employing quartal harmonies, altered dominants, and slash chords. This dichotomy between melodic and harmonic content highlights the juxtaposition of emotions.

The second iteration of “One Summer’s Day” occurs at 00:48:40. After a very tough few hours learning a new job and trying to please many new spirits (she is truly an outsider as the only living person in a city of spirits), Sen is presented with a simple act of love and kindness by her new friend, Haku. The kind act serves as a tipping point for Sen, who has a cathartic cry in her new friend’s arms. This scene also conveys a complex emotion relatable to anyone that has been somewhere new, whether that be the thrill and struggle of making new friends or the frustration and satisfaction of learning how to do some new skill. Again, the music assists in amplifying any of those perceived emotions. The bass motion in the A section mimics the emotional journey of the moment: In the first eight bars, the bass seems determined to move down from F to C. The second eight bars battle against that inertia by instead ratcheting up from C to G, ending in a half cadence before moving on to the B section.

The third instance of “One Summer’s Day” involves a reversal of plot from the second instance. Sen, in a moment of desperation, offers to travel to a formidable witch’s cottage, which she believes will save the life of Haku. In an aside reflection of the moment, two secondary characters discuss the girl’s actions. One asks what has gotten into Sen. The other says, “Something you wouldn’t recognize. It’s called ‘love’.” In the emotional height of self-sacrifice, Hisaishi’s song seems to capture some semblance of the indescribable emotion of love. I feel this most by the evaded harmonic expectations as we transition

between sections (especially between B and C). It is as if the music sacrifices itself to propel the whole thing to a new emotional high.

The final example of "One Summer's Day" closes the film (01:58:11). Reunited with her family, Sen seems sadder but wiser for her magical journey she has experienced throughout the film. In the final moments of screen time, her father asks if she's ready to go to a new school. Sen says confidently, "I think I can handle it." The liminal theme of the film is brought again to the forefront, accompanied by the simplistic piano in Hisaishi's song. By this point, we associate "One Summer's Day" with a wide array of emotions. What started out as a simple musical statement has grown to represent far more than it did in the beginning.

Within the previous four films, I have demonstrated moments where music was employed with frisson being the desired outcome. Each film comes from a culture steeped in its own musical traditions, customs, and expectations. While my model for frissonic flow can hardly be applied in every instance, it has served to illustrate certain broad characteristics of frissonic music making. For example, each film score has served to reinforce Turino's expectation that participatory performance is linked to *communitas*, along with all the feel-good affiliations. Secondly, each film score has shown with some sense of unanimity that the use of the human voice often propels the music making toward the left end of the spectrum — toward frisson.

To this second point of the human voice tending to inspire frisson, we can frequently see Hollywood composers employ vocals to tug at our heart strings. Think of the soaring boy soprano in Howard Shore's score as Gandalf rides to Minas Tirith in *The Lord of the Rings: The Return of the King* (2003), or John Williams' use of the choir to somberly usher the audience out of the theater after *Saving Private Ryan* (1998). At some level, each of these composers has realized that the human voice connects to the listener in a way that perhaps no instrument can. Perhaps this is what theorist Roland Barthes was getting at when he stated that "the 'grain' is the body in the voice as it sings [...] If I perceive the grain in a piece of music [...] the evaluation will be made outside of any law, outplaying not only the law of culture but equally that of anticulture, developing beyond the subject all the value hidden behind 'I like' or 'I don't like'.[66]

Whatever other inferences may be drawn from my adaption of Turino's music-making continuum, I think it is safe to conclude that human beings are often drawn to each other. The more the music we make or listen to enables this social tendency (even if only within the construct of our mind), the more our bodies reward us through frisson for taking the time to listen.

[66] Roland Barthes, *The Grain of the Voice: Interviews 1962-1980,* translated by Linda Coverdale (Berkeley: University of California Press, 1991), 188.

CHAPTER VII

CONCLUSION

We may never fully understand why humans experience frisson. However, just because something may not be fully understood is not reason enough to avoid attempting analysis. Over the last several chapters, I have endeavored to tease out how music made for film is employed to douse the audience in a sense of splendor and awe: in a word, frisson. In some cases, I have been able to succeed in finding commonalities between composers' efforts to employ frisson. Other examples have stood apart as unique artistic examples. There is certainly no one way to coax the audience into the pleasure of wonder.

In chapter two, I analyzed Rósza's motive representing Christ in *Ben Hur* using a variety of analytical techniques. By employing a small corpus study of each of Rósza's "Christ" motives, I was able to find a commonality in upward registral movement and surprising key transformations, as well as a general disposition to retain motivic transformations for pinnacle moments within a film.

In chapter three, I used prolongational analysis to examine Williams' behemoth conclusion to *E.T.* When they are given more control over larger structures, we can see that composers like Williams are able to use diffused expectations in formal structure, harmonic associations (particularly regarding key areas), and melodic contour to evoke frisson.

In chapter four, I created a new analytical model examining chordal movement between hyper-hexatonic poles. Using this system of HHP analysis, I was able to analyze several cues from Horner's *Jumanji*. I found that Horner reserves movement between HHPs for the most emotionally driven parts of a film. I also associated the general use of the Lydian mode with HHPs and, consequently, frisson. Further development of my system of HHP analysis could yield further insights into how triadic interactions envelop audiences in a sense of wonder and awe.

In chapter five, I used Oden's embodied analytical approach to engage with Newman's score for *Wall-E.* I found that timbral shifts are complicated to pin down as frisson-inducing. In only one out of the three analyzed timbral shifts did I feel any semblance of frisson. However, when timbral shifts *do* induce frisson, the effects are mesmerizing.

In chapter six, I engaged with cinema made outside of Hollywood. By building on Turino's four fields of music making, I was able to draw a link between music making leading to the sense of humanity experienced within participatory performance that can often lead to frisson. In particular, this collection of analyses provided a simple explanation for why film composers tend to employ the human voice to give people goosebumps. Furthermore, just the association of music making with the human voice can sometimes be enough to lead the listener to a frissonic state, such as with Hisaishi's non-sung song written for *Spirited Away.*

While I have been able to focus my attention on a handful of film scores, hundreds of thousands more exist. Common conventions, such as the general association of the Lydian mode with wonder, will likely always be found. However, each film score is a distinct work of art reflecting the worldview of at least one person — sometimes more! In future film score analyses, I would be interested to see how individual voices might come together to create a film score. What power dynamics exist? How are compromises met? There are several film scoring teams that have cropped up in recent years that could be potentially enlightening to study: Trent Rezner and Atticus Ross; Evgueni and Sacha Galperine; Robert Lopez and Kristen Anderson-Lopez.

Furthermore, my analyses within this thesis were limited to films that have already existed for several years. The most recent film I analyzed, 2018's *Lionheart* (2018), filled only two pages. Besides that film, my cinematic collection shifts backward almost a decade. I suppose that I (like anyone else) am the product of my time. I enjoy listening to the music of my youth. I also enjoy watching the films of my youth. However, I *also* enjoy discovering new films that I can love and analyze. In the future, I hope to examine even more modern scores. How have recent events shaped the lives of film score composers and, consequently, their scores? What artistic shifts happen within the field of film scoring in the next decade?

I truly believe that the human nature behind the music is what connects the score to the listener. To study a film score is inherently to study the composer. What they like. What they dislike. How they view the world. What

kind of society they live in. How they experience emotions like joy, sadness, or wonder. It all comes out in the music. By learning about the composer, we accordingly learn about humanity. However, just like we may never fully understand frisson, I suppose we will never fully understand humanity. But perhaps the mystery of it all is part of the wonder we experience.

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